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The Gift of
Hon. B. P. Johnson,
Secretary of the
New York State
Agricultural Society,
31 March, 1863.

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TRANSACTIONS

OF THE

New York State Agricultural Society,

WITH AN

ABSTRACT OF THE PROCEEDINGS

OF THE

COUNTY AGRICULTURAL SOCIETIES.

VOLUME XXI.—1861.

ALBANY:
CHARLES VAN BENTHUYSEN.
1862.

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NOTICE.

The Twenty-first Volume of the Transactions of the Society is submitted to the farmers of New York, in the hope that it will be found of equal value to those which have preceded it. The year 1861 has been an eventful one in the history of our country. A rebellion unexampled in the history of any country, for its malignity, has called from our population at least an hundred thousand men to defend the liberties of our country from the attack of rebels, nurtured and brought up under our free institutions, to which they were indebted for all the blessings they enjoyed, and which they have endeavored to destroy. A large portion of these defenders of our country's honor are from our rural population. Notwithstanding this large draft from our working men, the farmers have been enabled to cultivate and secure the harvest crops, and the reports in this volume will show the success which has attended their efforts.

Some very valuable papers will be found in this volume worthy the attention of every farmer. The address of the President of the Society, Mr. Geddes, gives a very interesting account of what the Society has done since its organization, and we are confident no one will doubt, in perusing this address, of the vast good which has been accomplished, and the permanent benefits which have been conferred upon the farming interest of our State.

The survey of the county of Steuben, by the Hon. Goldsmith Denniston, of that county, is a very valuable document. This is the first of the Southern tier of counties which has been given in our reports. Its early history as one of the reserve counties, is full of interest, and is given with great fidelity. Its progress, from 1790 up to the present time, shows the rapid progress which has been made by the steadfast pioneers of Steuben, and they have now before them a fair prospect of increasing prosperity in every department. A complete statistical history of each town is given, and Mr. Denniston is entitled to the thanks of the Society for the admirable report which he has given.

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An essay by Dr. D. Goessmann, on Sorghum Saccharatum, the sugar plant of the West, is one of the most valuable contributions yet made in this country in regard to this plant, and the proper methods of culture and preparation of syrup and sugar. Dr. Goessmann has been employed in Germany and France in the beet sugar manufacture as well as Sorghum, and his work will be found of very great value. It is much needed by our Western farmers, and will prove to them of the greatest importance. It is very full and complete, and it cannot be doubted will be highly appreciated by all interested in the production of the sugar plant in the Western States, as well as in our own State.

The dairy article, by Mr. X. A. Willard, given in this volume, will be found of great importance to the dairy interest in our State.

The seventh report of the Entomologist of the Society treats of the wheat insects, and will be found of great value to the farmers of our country. The demand both in this country and from foreign countries for the reports of Dr. Fitch, shows the importance of his labors. From every section of our country we are receiving calls for these reports, and regret that we cannot supply to all who are desirous of receiving them. These valuable contributions to the Entomology of our country, to which none of equal importance, upon the subjects which have been treated, have been published in this country, are deserving of all the attention they are receiving.

The essay on Fine Wool Sheep, by Hon. Henry S. Randall, LL. D., is the only complete history of the fine wool sheep, from their earliest importation, which has been given in this country. It is a work of immense labor, as will be seen on perusal, and every source of information which a very extended correspondence as well as personal examination could secure, has been given. And from the well known ability of the writer, as well as from his practical knowledge and experience as one of the earliest sheep breeders in our State, it will ensure the confidence of wool growers in every section of our country, and will lead to a revival of interest in the growing of wool,—so important to the welfare of the farmer, as well as for the best interests of our country.

Two interesting articles by Luther H. Tucker, Treasurer of the Society—Notes from the valley of the Chenango and Susquehanna, and the Agriculture of Chester County, Pennsylvania.

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The reports of the County and Town associations show a commendable increase of interest among our farmers. Many of these reports are of very great interest, and deserve attentive perusal.

The Agricultural Statistics from the United States census of 1860, have been kindly furnished us by the Hon. J. C. G. Kennedy, Chief of the Census Bureau, for which we are much obliged. We have made a comparison between these returns and those for 1850, taken by the General Government, and we commend this comparison to those who are desirous of being informed as to the progress of the agricultural interests of our State.

To the gentlemen who have furnished us the valuable articles in this volume, and we are assured none of more interest have been published, we return our most cordial thanks.

To the farmers of our State great credit is due for the manner in which they have discharged their duties; and while much remains to be accomplished, the record here given shows that this great interest of our State is making creditable advances, and we look forward with high expectations to the next ten years, which we hope will show our agriculture equal to that of the most favored countries.

B. P. JOHNSON.

Agricultural Rooms, *April*, 1862.

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CONSTITUTION

OF THE NEW YORK STATE AGRICULTURAL SOCIETY.

The style of this Society shall be "The New York State Agricultural Society." Its object shall be to improve the condition of Agriculture, Horticulture, and the Household Arts.

SEC. 1. The Society shall consist of such citizens of the State as shall signify in writing, their wish to become members, and shall pay on subscribing not less than one dollar, and annually thereafter one dollar, and also of Honorary and Corresponding members.

The Presidents of County Agricultural Societies, or a delegate from each, shall ex-officio be members of this Society.

The payment of Ten dollars or more shall constitute a member for life, and shall exempt the donor from annual contributions.

SEC. 2. The officers of the Society shall consist of a President, eight Vice-Presidents, one to be located in each Judicial District, a Recording Secretary, a Corresponding Secretary, a Treasurer, an Executive Committee, to consist of the officers above named, and five additional members, and five of the Ex-Presidents shall be ex-officio members of the Executive Committee, and these five shall consist of the five Ex-Presidents whose term of office has last expired, of whom three shall constitute a quorum; and that the Ex-Presidents of the Society, not members of the Executive Committee, shall constitute a Board of Counsellors, to which may be referred, for consultation and advice, all questions that may from time to time arise, and in the decision of which the Society may in any manner be interested; and a General Committee, the members of which shall be located in the several counties, and be equal to the representatives in the House of Assembly.

SEC. 3. The Recording Secretary shall keep the minutes of the Society. The Corresponding Secretary shall carry on the correspondence with other Societies, with individuals, and with the general committee, in the furtherance of the objects of the Society.

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The Treasurer shall keep the funds of the Society, and disburse them on the order of the President or a Vice-President, countersigned by the Recording Secretary, and shall make a report of the receipts and expenditures at the annual meeting in February.

The Executive Committee shall take charge of and distribute or preserve all seeds, plants, books, models, etc., which may be transmitted to the Society; and shall have also the charge of all communications designed or calculated for publication, and so far as they may deem expedient, shall collect, arrange and publish the same in such manner and form as they shall deem best calculated to promote the objects of the Society.

The General Committee are charged with the interests of the Society in counties in which they shall respectively reside, and will constitute a medium of communication between the Executive Committee and the remote members of the Society.

SEC. 4. There shall be an annual meeting of the Society on the second Wednesday of February, in the city of Albany, at which time all the officers shall be elected by a plurality of votes and by ballot, with the exception of the General Committee for the counties, which may be appointed by the Executive Committee, who shall have power to fill any vacancies which may occur in the officers of the Society during the year. Extra meetings may be convoked by the Executive Committee. Fifteen members shall be a quorum for the transaction of business.

SEC. 5. The Society shall hold an Annual Cattle Show and Fair at such time and place as shall be designated by the Executive Committee.

SEC. 6. This Constitution may be amended by a vote of two-thirds of the members attending any annual meeting, upon one year's previous notice in writing.

STATE AGRICULTURAL ROOMS,
February, 1862.

I certify that the above is a true copy of the Constitution of the New York State Agricultural Society.

B. P. JOHNSON, *Cor. Secretary.*

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Prof. CHARLES H. PORTER.

ENTOMOLOGIST.

ASA FITCH, M. D.

Monthly meeting of the Executive Committee, first Thursday in each month.

State Agricultural Rooms and Museum, State Agricultural buildings, State street, corner of Lodge.

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Crittenden, Norman, Ithaca.
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Sherrill, Eliakim, Geneva.
Standring, L. S., Deer River.
Saunders, Thomas P.

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Tucker, Luther. Albany.
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Taber, Samuel T., Chestnut Ridge.
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Tappan, John L., Ann Arbor, Mich.

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Upham, A. S., Le Roy.

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Woodworth, Augustus P., New York.
Whitney, Orla H., Mexico.
Walbridge, D. T., Rochester.
Willard, G. L., Cold Spring.
Wight, R. A., Albany.
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White, Rufus P., Adams.
Wood, Amos F., Woodville.
Ward, F. B., Le Ray.

Y.

Yelverton, Robert, New York.

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State of New York.

No. 252.

IN ASSEMBLY,

April 2, 1862.

ANNUAL REPORT

OF THE NEW YORK STATE AGRICULTURAL SOCIETY.

AGRICULTURAL ROOMS,
ALBANY, *April* 2, 1861.

To the Hon. HENRY J. RAYMOND,
Speaker of the Assembly:

Pursuant to the acts of the Legislature for the promotion of agriculture, I present the Annual Report of the New York State Agricultural Society, with the proceedings of the Executive Committee, and abstracts of the reports of county societies.

I am, very respectfully, yours,

B. P. JOHNSON,
Corresponding Secretary.

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TRANSACTIONS

OF THE

New York State Agricultural Society.

To the Legislature of the State of New York:

Another year has passed away, and it becomes the duty of the Executive Committee to present to the Legislature and the Society, the result of the operations during the year so far as the subject of agriculture in all its branches is concerned.

The year has been one of the most eventful in the history of our country, and agriculture, as well as every other pursuit, has been influenced by it. It is, however, a matter of rejoicing, that amidst the excitement among us, and the withdrawing from our working men more than 100,000 men to resist the aggressions of those who are endeavoring to destroy the best government which ever existed, that the farmers have been enabled to carry forward their operations without serious hindrance, and to gather in the crops which a kind Providence has vouchsafed to them; and while some other classes of our fellow citizens have been severely pressed by the present state of our country, the farming interest in our State may be said to have passed through the ordeal with far less annoyance than might have been expected.

It is gratifying to record, as we do, the promptness with which the farmers and mechanics of our State, in common with their fellow citizens, have come up to the defence of their country, in this hour of its peril, thus justifying what has ever been said of them, that when the hour of trial should come, they would be ready to defend that country which has protected them, and sustain with their lives, those free institutions bequeathed them by the blood of their ancestors; and never will they be found to shrink in the

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hour of conflict, but if need be, will yield up their lives in defence of their country.

While the returns of the farm have, upon the whole, exceeded our expectations, the price of the articles seeking a market, has been, upon the whole, remunerative, and the way is prepared for meeting the expenses necessarily resulting from the conflict in which we are engaged.

The Executive Committee, at their meeting in Syracuse in March, received from the citizens of Watertown, the assurance that the requirements of the Society would be complied with, and located the fair at that place, in accordance with the resolution of the Society at its annual meeting, and the list of premiums were issued, and the citizens of Watertown commenced operations preparatory to the arrangements of the fair.

Trial of Implements.—The importance of having a thorough trial of agricultural implements, has impressed itself upon the minds of many interested in this important branch so indispensable to the progress of the farmer; and, in pursuance of a resolution of the Society at its annual meeting, the President and Secretary were authorized to take preliminary measures for the exhibition and trial of implements, and to report to the Board at its next meeting. At a meeting of the Board in March, it was resolved that a trial of implements be had if the necessary arrangements could be effected, and a report of the President and Secretary as to the specifications and requirements and the awards to be given, was presented and adopted, and the preliminary preparations for the trial were made. The Board were assured by the citizens of Auburn, that the desired arrangements would be perfected at that place. At a meeting of the Board at Watertown, in April, the subject of the trial of implements, was brought up—and in consequence of the then state of the country rendering it improbable that a general exhibition could be had from all parts of the country—it was resolved to postpone the trial. The Board regretted this necessity, believing that it was a measure, which if successfully carried out, would be of lasting benefit to the agriculture of our country; but that a partial exhibition, which it was probable must be the result in the then state of the country, would be of little comparative value. They considered the matter of so much importance as to urge its consideration upon their successors, if the way should be prepared, for a complete and thorough trial of the various implements in use.

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At a meeting of the Board in June, a motion was presented that the Annual Fair be dispensed with, or that the arrangements be made so as to leave the Board free to postpone it to a further day or indefinitely, *within a month* of the day appointed for holding the fair. The subject was fully considered by the Board, and it was decided that the fair be held at the time appointed. And the propriety of this determination, it is believed, was most manifest in the exhibition itself not only, but also in the encouraging effect which resulted from our decision, to other societies in our own as well as other States in the Union; of the exhibition itself, we shall speak more fully in another portion of this report.

The appearance the past season of two insects, but vaguely known before, injurious to our crops, in unusual numbers, has been remarkable. The *Grain Aphis* this year appeared in every section of this State, except the Western section, in countless numbers, and caused great solicitude among our farmers, and in some instances serious injuries to the crops; a full description of these insects will be found in the Transactions of 1860, page 833. The *Army Worm* has appeared also in great numbers, and has caused immense damage throughout our country. Dr. Fitch, the Entomologist of the Society, in speaking of these insects, says: "This present year may be regarded as the most remarkable, in the insects it has developed, of any that has occurred in our day, probably the most remarkable that has ever occurred since the country was settled.

"That an insect should show itself of such a threatening aspect as to arrest public notice, in the midst of the intense excitement of a civil war, is an event seldom if ever known before in history."

The Executive committee deemed it important that a description of these insects, as far as practicable, should be published without delay, and the Entomologist of the Society prepared as full a description of the *Grain Aphis* and the *Army Worm* as he was enabled to do from the facts he had accumulated, and they were added to his sixth report published in the transactions for 1860. It became necessary to delay the issuing of the volume at the usual time; it is believed that the farmers of our country will not complain, as the report presented will be found of unusual importance, and will furnish them with many valuable

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suggestions in relation to these depredators, as well as the *Wheat Midge*, which is fully discussed in the report.

Every year is furnishing evidence of the great value of the labors of the Entomologist of the Society, but none has developed such striking demonstrations of the importance of sustaining this department as the year 1861. The labors of our Entomologist have attracted the notice of distinguished entomologists in every country in Europe. We trust that his efforts will be not only appreciated, but that ample provision will be made for the continuance of his labors. He is engaged in finishing the report which was commenced in the last volume for the Transactions to be published.

The *Wheat Midge* is fully treated of in that report, in the volume of 1860, and the *Hessian Fly*, *Virginia Joint Worm*, and the *Angomois Moth*, the plates of which have been prepared, will appear in the report for the present volume, they being already completed.

It is highly probable that the result of the present difficulties in our country will cause a change in the agriculture of our State in many respects. Our farmers are already turning their attention to the rearing of sheep, both for wool and mutton, and it is probable that in this direction much more can be done than has been for several years past, and to good advantage to the farming interests of our State. The investigations now making in relation to flax as a substitute to some extent for cotton, are also attracting attention, and from the experiments which have been made, there is, we think, reasonable ground to hope that the object sought may be accomplished, and result in increased remuneration to the farmer; we refer in another part of the report to the movements making in Rhode Island.

We are gratified in being enabled to report that the improvements in our State are steadily progressing; after so many years as have elapsed since the public attention was called to the subject of drainage, it is worthy of remark that the farmers of this State are giving assurance that they appreciate its importance. Never, in any season, has there been more striking evidence of the appreciation of drainage. In almost every section of the State may be seen the work in progress, and the only limit seems to be the supply of tile for the work to be performed.

Our dairy districts feel its importance, in giving to them, in many localities, a sweeter and more nutritious herbage

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than heretofore, and securing also a better article from their dairies for market.

During the last annual meeting intelligence was communicated to the Society that *pleuro pneumonia* was apparent in some dairies in the vicinity of the city of Albany, and the Executive Committee were instructed to make investigations in regard to it, and take such action as might be deemed advisable; one of the veterinary surgeons of the Society, Dr. Copeman, examined carefully some of the animals affected, gave full directions as to their treatment, and the care of animals that might be affected, enjoining a complete separation of the infected ones or those exposed to infection from the healthy animals, and where this has been promptly and efficiently carried out, it is believed it has been successful. No reports have reached the Agricultural Rooms since the season opened in the spring, and it is hoped that, with proper care and attention, should the disease again appear, it may be controlled and no serious loss occur.

We have been called to mourn the loss of those who have been associated with us in the advancement of the great interest, so important to the welfare of our country. In the month of March, *Mr. J. De Nottbeck*, a distinguished Russian gentleman and Consul General of Russia, in New York, a corresponding member of the Society, was suddenly killed in the city of New York. He was a gentleman of rare acquirements; he took a warm interest in our Society, and was the means of opening with the Russian Government a valuable exchange of agricultural works, and also was instrumental in securing the introduction of a large collection of our agricultural implements and machinery into Russia. Appropriate resolutions were adopted by the Board, and communicated to the family of the deceased and to the Imperial Government of Russia.

In November, the *Hon. John P. Beekman*, of Kinderhook, who was one of the earliest members of the Society, twice its president, and one of its earliest life members, died at his residence in Kinderhook. Few men in our State have done more than Dr. Beekman in the cause of agriculture; and no one has been more faithful to the Society, ever present at its meetings, when his health would permit, and ever ready, by his counsel and his contributions, to sustain the Society, believing, as he did, that the progress of agriculture was deeply connected with the Society's operations and its prosperity. He will long be remembered

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by those who had the pleasure of his judicious and wise counsels as a member of the Society.

On the 25th of November, *Hon. Henry Wager*, of Oneida county, formerly President of the Society, and for many years one of its executive officers, died at his residence in Western. He was a farmer by profession, and was a most efficient and active friend of the Society, and devoted himself most earnestly to the promotion and advancement of the interests of agriculture. He was President of the New York State Agricultural Society, and for several years a member of its Executive Board, and labored faithfully to promote its interests and to extend its usefulness. He was a member of the Board of Trustees of the State Agricultural College, and labored faithfully to place that institution into active operation. We are reminded by these dispensations of Divine Providence, that our abiding place is not here; and these lessons of mortality should be so improved as to induce us to devote ourselves more unreservedly to the great work before us, in whatever department of life we may be engaged. Let us remember that time with us is short, and that it becomes our duty to work while the day lasts, and so to do our work that we may receive the welcome at last of having faithfully performed the duties imposed upon us.

In the present state of our country, it is important for us to consider as to the future movements of the Society. One of our county societies, in their report, say "the year 1861 has demonstrated the stability of agricultural pursuits over all others; the farmer is not so easily affected by the changes in trade and commerce, by the rise and depression of stocks, by expansion or contraction of the money market, by wars or rumors of war. Every wind of rumor that crosses the Atlantic affects the pulse and the feelings of our commercial metropolis, ruffles the surface of business, very often surges the wave of fortune to its utmost depth. But the farmer, upon his farm, like some secluded lake, amid the surrounding hills, is scarcely sensible of the storms and commotions that agitate the seaboard. His crops may not yield an average, prices may decline. He shapes his expenditures by his income, and by a judicious management of his affairs feeds himself and the world." It becomes us to economise in every department, and to afford, as far as possible, to the places that may desire the annual exhibition, as small an amount of expenditures as is consistent. We deem it of the highest importance, at

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the present time, that our agricultural associations should be sustained. The reports which have been received, both from county and town organizations, show that during the past year they have been well sustained, and we indulge the hope that they will receive such support as will enable them to proceed in their operations, and do great good to the community at large.

Hessian Fly.—We are receiving accounts of the appearance of the Hessian fly in the wheat crop of our State; to what extent the ravages of this insect may extend, we are not advised; but the fact of its appearance in crops in different sections of the State, and other States, shows the importance of giving attention to the means best adapted to prevent its ravages. In Dr. Fitch's Treatise on the Hessian Fly (Transactions of 1846, p. 358), he gives various measures which have been proposed as remedies, the most important of which are:

1. *A rich soil.* This has been strongly urged by almost every writer on this insect; other things being equal, the impoverished lands suffer the most. Hence those on sandy soils, which retain the strength of fertilizing agents less than other soils, have, in numerous instances, been remarked as most severely devastated. Ezra L'Hommedieu long ago intimated that the Hessian fly on Long Island, by driving the farmers to manure their lands, instead of a curse had actually been a blessing. (Transactions of the Society of New York for the Promotion of Agriculture, Vol. 1, p. 57.) The necessity for a rich, fertile soil is a primary and indispensable measure, and one which must accompany other remedies to be next considered, in order to their full success.

2. *Late sowing.* This measure is almost unanimously recommended, and is probably one of the most efficient, as it is the most facile remedy of any that can be resorted to. It is admitted that it is the earliest sowed fields that are the most infested.

3. *Grazing.* This measure is worthy of attention when an attack of the fly is feared; as the exact time of the deposition of the eggs is somewhat variable in different seasons, it will be necessary to watch the young wheat as soon as two or three blades from each root appears; and if the fly is discovered depositing its eggs, sheep or other stock should at once be turned upon it in such numbers, if possible, as to eat down the crop in a few days. The eggs will thus be destroyed, and the favorite nidus of the fly for continuing this deposit will be effectually broken up; it will thus be compelled to resort to other quarters.

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The same success may also be repeated in the spring, if found necessary. No injury to the crop need be apprehended from its being thus grazed down, if the soil is of due fertility; it soon and entirely recovers from this operation.

There are many other remedies referred to by Dr. Fitch, which will be found in the report. Our Entomologist has prepared for the present report of the Society a full and complete history of the Hessian Fly up to the present time. This will be found a document of very great value, and will no doubt be appreciated by our farmers.

Flax as a substitute for Cotton.—The question, Can flax be used as a substitute for cotton, profitably? is being extensively discussed, and experiments have been made during the past year, in order to settle this question. The Rhode Island Society for the Encouragement of Domestic Industry, offered a premium for flax cotton "fit for use on machinery," and accompanied with a statement of its culture, production and preparation, including the cost of the various processes. The committee appointed to examine the flax cotton offered for the premium, made their report in October last, stating that in their opinion none of the contributors are entitled to the premiums offered. They say: "It is, however, due to the enterprising gentlemen who represented Mr. Stephen Randall's process for breaking the flax, to say, that flax, as prepared by them, for working with wool, is, in the judgment of the committee, much more valuable than cotton, in all fabrics in which cotton is now mixed with wool, and in some kinds of goods appears to be desirable as a partial substitute for wool itself."

The committee, from their investigations, are inclined to believe that the encouragements for ultimate success are too strong to allow the investigation to rest, and it is recommended that at least the sum of $3,000 be raised so as to practically settle this question. Samples of goods, half flax and half wool, are at the rooms of the Society, and show that so far as wool is concerned there is no doubt of its success.

It is important that these investigations should be continued, and if success shall follow, it will prove of immense importance to our own State, much of which is well adapted to the raising of flax, and this will render us less dependent upon others for their cotton, and not leave us subject to the continued fluctua-

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tions in market of this crop, so largely furnished by the southern portion of our country.

Agricultural Statistics.

The importance of a systematic plan for obtaining the agricultural statistics of the State, annually, is attracting more attention than usual. Of its great value to the State at large we think there can be no doubt, and the successful report, as witnessed in Tompkins county the past year and as contained in our last volume of Transactions, shows conclusively its feasibility as well as its great importance.

In the report from Tompkins county it is said "The question of agricultural statistics is very deservedly commanding the attention of the farmers of our county. All persons who have given the subject the least attention, recognize the important fact, that to lay a broad and enduring foundation of improved husbandry, we must first study the character of our soil, its present productive capacity, the purposes for which it is best adapted, the extent and character of our present improvements, our present productions, and in general our present resources; to this end a well digested system of annual statistics seems indispensable."

It is very gratifying to be assured as we are in the report from this society, that the collection of statistics for 1861 is now in progress and will soon be completed, by which we shall be able to compare the products of 1860 with those of 1861.

The president of one of our county societies informs us that he has been for some time past engaged in collecting the statistics of productions of the several towns of his county, together with the description of soils and their adaptation to producing various crops; geological features, physical geography, &c. He says he has been somewhat surprised at facts that have come to his knowledge, in some cases making the average far greater, and in others far less than had been estimated. "Our products of the dairy and of wool growing indicate a far greater success than any other agricultural department. Grain growing tends yearly to impoverish the soil and to produce from year to year poorer crops. The ratio of productiveness depends altogether upon careful culture, and an annual restoration to the soil of the productive qualities taken from it by preceding crops."

Facts similar to these are being constantly brought to the

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notice of the Executive Committee from different sections of the State. It is hoped the Legislature will take favorable action upon the bill which has been introduced for the collection of agricultural statistics throughout the State.

Arabian Horses.

These horses which were under the charge of Messrs. Bathgate & Co., during the past year, were returned to the Society at the fair at Watertown. They attracted, as they deserved, much attention, and had improved very much since they were shown at the exhibition at Elmira. The subject of the disposition of the horses for the ensuing year was submitted to a committee of the Board who reported as follows:

"The committee to whom was referred the question of making a proper disposition of the two Arabian horses, the use of which has been generously tendered to this Society by Gov. Seward, with a view to the introduction of their stock into this country, respectfuly report: That we have taken the matter into deliberate consideration and made as diligent inquiry as the limited time allotted to us would present, to ascertain the views and wishes of the people on this subject.

"It is due alike to the generosity of the donor, through whose kindness and liberality these animals have been brought to this country and presented to this Society, and the importance of improving our breeds of horses, that these beautiful animals should have a fair trial. This could hardly be expected in the first year. If this breed is really useful to the agricultural community, this Society should not, in the opinion of your committee, intermit its efforts to carry out the wishes of the distinguished gentleman who has committed them to our keeping.

"We are aware of the competition existing among horse breeders, each exceedingly tenacious in establishing the claims of his own favorite kind to superiority; and we cannot expect any favor or partiality, from those interested, for other breeds.

"Under all the attending circumstances we have come to the conclusion that it is the duty of this Society to give these Arabian horses a full and fair trial, and to this end we respectfully recommend that instead of being kept together as they have been during the past year, they be separated and placed in the keeping of responsible men, not particularly interested in other breeds, and who will give satisfactory security for their careful

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safe-keeping and return to the Society at its next annual fair. That one of the horses be kept for service in Central or Western and the other in Northern New York, the gentlemen having them in charge undertaking to keep them without any cost to the Society, each with discretionary power to fix the price of their service, and report the same to the Executive Committee, and account for and pay over, at the close of the year, the proceeds arising from their use, retaining a reasonable compensation for keeping and caring for the same. The moneys thus received to be applied by the Executive Committee as a partial indemnity to the owner for his expense in importing them from Europe.

"If this recommendation receives the approval of this Board, your committee, or some other, ought to be made to carry these suggestions into immediate effect."

The Executive Committee concurred in the above report, and referred the matter to the committee for a final disposition of the horses, who reported in favor of locating one of the horses in Jefferson county, under the care of S. D. Hungerford, Esq., of Adams, and the other in the care of Ezra Cornell, of Ithaca, these gentlemen agreeing to take the best possible care of the horses, charging a reasonable price for service, and paying over to the Executive Committee the proceeds for their service, retaining a reasonable compensation for keeping the horses, and agreeing to return them to the Executive Committee at the next annual fair of the Society.

The Executive Committee consider themselves fortunate in securing such a disposition of the horses in the State as would enable the farmers and others to secure their services at reasonable rates, and the location in Jefferson and Tompkins counties will be, perhaps, as convenient as any that could be selected, and the gentlemen who have the charge of them take a lively interest in having a thorough trial of the horses, believing that they will prove of great value to the stock of our State.

Agricultural Associations and Exhibitions.

We are every year impressed with the great importance of associated effort for the improvement and advance of agriculture in our State. To those of us who have been familiar with the movements from 1841, when the first State Fair was held, to the present time, no argument is necessary to convince us of the great good which has resulted from our efforts, and we have

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assurances from every section of the State that the most beneficial results have been experienced from the different associations formed throughout the State.

The reports received of the operations of the societies during the year, show a most creditable state, notwithstanding the large draft of laboring men in the service of the country. The assistance received from the State has been of great advantage in encouraging the societies and enabling them to sustain their associations, and in return yielding a large revenue to the State, from the improvements which have resulted from those organizations. We trust that the usual appropriations will be made to sustain those organizations.

International Exhibition in London, 1862.

The Executive Committee have heard with regret, that an application before Congress, for an appropriation to enable the exhibitors of this country to be appropriately represented, has failed in the House of Representatives. The Executive Committee believing that a representation from this country, at the present time, would be in the highest degree conducive to the best interests of our country, and would prove highly instructive to the nations there to be represented, they would most respectfully request that measures may be adopted by which those who have entered their articles for exhibition may be enabled to present them at the exhibition.

Resolved, That the Secretary cause a copy of the above, with the proceedings of the Executive Committee in June last, to be forwarded to the Senators from this State, with a request that they be presented to the Hon. the Senate, and referred to the committee on Foreign Relations, who have the matter in charge.

The Executive Committee of the Commissioners having completed the business entrusted to them, as far as could be without an appropriation from Congress, presented the following memorial to the President, requesting him to bring the subject before Congress, and recommend such an appropriation as may be necessary to secure a proper exhibition of American interests, and carry out the objects of the Commissioners:

"Sir: The undersigned, members of the commission appointed to represent the interests of those American citizens who may desire to become exhibitors at the International Exhibition to be held in London in 1862, beg leave respectfully to present to you an account of what has been done by the commission up to

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the present time, and to offer a suggestion as to the further action of the Government, indispensable to the success of the interests entrusted to their care.

"The commissioners assembled in the city of Washington, on the 14th of October, 1861. The following gentlemen, comprising all the members of the commission, (except the Hon. Mr. Everett, who was unavoidably detained) were present, namely: William H. Seward, Secretary of State; Caleb B. Smith, Secretary of the Interior; Joseph Henry, Robert B. Minturn, John H. Klippart, G. Dawson Coleman, James R. Partridge, B. P. Johnson, Richard Wallach, Jos. C. G. Kennedy, W. W. Seaton, and Eli Whitney.

"The Commissioners agreed upon a plan of action, directed a circular to be issued, inviting attention and the co-operation of citizens; published the information then in their possession, and appointed the following gentlemen as assistant Commissioners to aid them in their duties, viz:

"J. W. Hoyt, of Wisconsin; James F. Harney, of Indiana; David Davis, of Illinois; James H. Baker, of Minnesota; R. P. Lowe, of Iowa; Leland Stanford, of California; and Jacob M. Howard, of Michigan.

"An Executive Committee was next appointed, whose duty it should be to make all arrangements necessary on the part of the United States, for the proper representation of the industry of this country at the exhibition. This committee consists of the following members, namely: B. P. Johnson, J. R. Partridge, J. C. G. Kennedy, and W. W. Seaton, of whom Mr. B. P. Johnson was chosen permanent chairman, and Mr. Partridge, Secretary.

"To the Executive Committee has been assigned an office in the building of the Department of the Interior; and the committee has been ever since then constantly and actively engaged in discharging the important duties with which it was entrusted.

"Circulars have been issued announcing the decisions of Her Majesty's Commissioners in London, and giving directions to be observed in regard to the articles intended for exhibition. Agents were appointed throughout the country, wherever the committee were asked to name or could find gentlemen willing to act, to examine and report on contributions offered, and to admit for exhibition those which came within the rules laid down by the English Commissioners. Forms of application, demands for space, approvals, &c., according to those rules, were also printed and distributed, and every means within the control of the com-

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mittee used to publish the information relating to the exhibition, and to facilitate the acceptance and transmission of contributions.

"Copies of these circulars are herewith respectfully submitted, showing the names of all those assistant Commissioners and agents; the decision of the English Commissioners; the regulations adopted here to induce and facilitate the transmission and exhibition of contributions from this country; and the invitation extended, and appeals made by the Commissioners to the artists, inventors, constructors and machinists of the United States, to contribute to the proper representation of their interests at the exhibition.

"A public storehouse at the Atlantic docks, Brooklyn, has been assigned by the Collector of New York, under the directions of the honorable Secretary of the Treasury, for the storage, free, of all articles entered and accepted for the exhibition.

"And if a suitable vessel be assigned or provided now by the Navy Department, as in 1851, to convey articles and return them at the close of the exhibition, all that is necessary for the *transmission* and *return* of American contributions will be secured.

"In addition to these facilities, however, which have enabled the Commissioners to invite contributions from this country, to publish the conditions and regulations of the exhibition, and to offer the means of transmitting, securing entry and return of American contributions, it is indispensable, in order that what has been done may not utterly fail, and to secure also the *admission* and *exhibition* of American contributions, that this government shall make adequate provisions (as all other governments there to be represented have already done) for the payment of the expenses to which this government, like all others, is subject for fitting up and rendering available for the reception and exhibition of contributions the space assigned to its use.

"At the former exhibition in London, in 1851, even after American contributions had been placed in the building, and after every arrangement had been made, as it was thought, by exhibitors, the whole seemed certain to fail by reason of the absence of any provision by this government, alone of all, for fitting up the space assigned to the United States, and to place it in a condition to be used.

"Such failure would have been certain and irremediable, and thus no representation would have been had of American interests

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had it not been for the public spirit of a citizen of the United States resident in London.

"On the faith and expectation that the sum would be repaid, he advanced for the honor and credit of the country some seventeen thousand dollars for that purpose.

"It was through the money thus advanced that contributions from the United States were enabled to be exhibited at all, and credit and advantage secured to the country from the success there witnessed by all nations of American naval architecture, American reaping machines, and the many other productions of American ingenuity and skill.

"In regard to the importance of our being properly represented in this great exhibition of the resources, the skill, and the inventions of all nations, it may not be inappropriate to refer to the practical effects on our national interests of the exhibition of 1851. Although, from the want of precise and timely knowledge as to the rules and the necessary means of sending and arranging the articles, we were at that time very imperfectly represented; yet the final results of what was done, even under a disadvantage, were highly gratifying. Not only was reputation for skill and ingenuity of this nation established and increased by the articles exhibited, but new markets were opened for the first time for many of our industrial products, in some of which we have since gained the ascendancy.

"Our agricultural machinery and implements, especially, were brought into practical use in Europe at that time, and, in consequence, have since become important articles of exportation.

"Although it will not be expected, in the present state of our country, that we shall do as much as we could have done under ordinary conditions, yet we think there is no good reason for believing that we shall not be comparatively much better represented in 1862 than we were in 1851.

"Our general progress in improvement during the interval has been at least equal to that of any other nation; while in the development of resources, and in the advance of the practical arts, our progress has perhaps been still greater.

"In the present state of our affairs, and the position we now occupy in the eyes of the world, it is of the first importance that every facility be afforded to our exhibitors, in order that the United States may be well and truly represented; and thus

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enabled to convince the nations of Europe, to whom our articles will be exhibited, that, notwithstanding so much of our labor and energy is absorbed by the operations of war, we are able also to attend to the arts of peace, to furnish materials and inventions of essential importance to the advance of society in comfort and civilization.

"If the advantages of this exhibition are thus properly secured it will enable us to demonstrate, more forcibly than by any other means, the resources and enterprise of our country, and to assure the powers of Europe of our capacity for continued energy, unity, and prosperity.

"The great producing classes of our country, on whom its worth and prosperity mainly depend, will be highly gratified to have an opportunity to exhibit, under favorable circumstances, samples of their own skill and ingenuity, as well as of the products of their respective districts. And the appropriation which may be granted by Congress for this purpose will be a better investment of the public money than any other which can be made.

"It will not only be re-paid with interest in pecuniary returns, but also in the effects of a proper illustration abroad of our national character and resources. To this it should be added, that it will be done at a time when, more than at any other period, it becomes us to prove that we still have our resources, skill, invention, ingenuity and energy unabated.

"In conclusion, we most respectfully request that you will at once bring this subject before the Congress, and recommend such an appropriation as may be necessary to secure a proper exhibition of American interests, and to carry out the objects of the commission.

"Respectfully submitted,

"B. P. JOHNSON,
"J. R. PARTRIDGE,
"JOSEPH HENRY,
"J. C. G. KENNEDY,
"W. W. SEATON."

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President Lincoln sent to the Senate and House of Representatives the papers submitted to him, with the following message, on the 20th of December :

"*To the Senate and House of Representatives:*

"I transmit to Congress a letter from the Secretary of the Executive Committee of the commission appointed to represent the interests of those American citizens who may desire to become exhibitors at the Industrial Exhibition to be held in London in 1862, and a memorial of that commission, with a report of the Executive Committee thereof, and copies of circulars announcing the decisions of Her Majesty's Commissioners in London, giving directions to be observed in regard to articles intended for exhibition, and also of circular forms of application, demands for space, approvals, &c., according to the rules prescribed by the British Commissioners.

"As these papers fully set forth the requirements necessary to enable those citizens of the United States who may wish to become exhibitors to avail themselves of the privileges of the exhibition, I commend them to your early consideration, especially in view of the near approach of the time when the exhibition will begin."

The Chairman and Secretary of the Executive Committee attended before the committee and explained to them the objects of the exhibition, and its importance to our country, and made a statement of the probable expenses of the exhibition. The Government having informed the Executive Committee that no government vessel could be spared to convey the contributions to London, provision was to be made to forward them by private vessels.

Mr. Stevens, from the committee of ways and means of the House, on the 7th of January, reported a bill appropriating $35,000. This bill was called up on the 15th, and discussion had upon it, and laid upon the table. The speeches reported of Mr. Conklin, of Oneida district, New York, and Mr. Lovejoy, of Illinois, were against any appropriation.

We have only to say, in relation to this matter, that we believe the exhibition from our country at this time is of far more importance to us than if we were at peace with all the world; and in the present relations of our country with Great Britain it is eminently desirable that we should cultivate friendly relations; and this exhibition from our country would be deemed in that respect of no little importance.

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The entries made for the exhibition, to be sent by government conveyance, will fill at least one-half the space allotted to us; and those to be sent by the exhibitors, at their own expense, it is believed would fully occupy the remainder.

Having been present at the exhibition of 1851, and having examined the entries made and approved by the Executive Committee, and having seen personally many of the articles reported by the agents appointed, we are prepared to state that our contributions already entered are far superior to those of the exhibition of 1851, and many of them of such a character as will command the attention of the world, to be assembled at this gathering. The entries from the State of New York alone would do no discredit to us, as a nation, under our present circumstances.

Unless the law before Congress is promptly passed, it is much to be feared that the exhibition from this country will not be such as to be creditable to our country. We write this on the 17th of January, and unless provision is made so that the goods can be sent early in February, we shall have little expectation that our hopes of a respectable exhibition shall be realized.

We are gratified to be able to say that the Executive Committee, and the Commissioners appointed by the President, have done all within their power to prepare for this great exhibition, and having presented the subject to the representatives of the people, the responsibility must rest upon them as to our being properly represented.

Refusal by Congress to make appropriation.—It is much to be regretted that Congress refused to make an appropriation of $35,000, to cover the expenses of the exhibition, as we believe the occasion will be one when our exhibitors would have been received cordially, and the result would have been in the highest degree advantageous to our country.

We are pleased to be advised that a considerable number of the exhibitors have forwarded their articles, and we shall be represented there, but in a much less creditable manner than we should have been, had the necessary provisions for expenses been made. The Executive Committee have done all in their power to have this exhibition fully represented from our country; and they have no reason to doubt that had the necessary means been promptly furnished by Congress, the United States would have been represented in a manner creditable to us.

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Twenty-first Annual Fair.

The annual exhibition of the Society was held at Watertown, September 17th to 20th. This was the second time the Society had visited Watertown. In 1856 the fair was held there, and never in the history of the Society had there been such unfavorable weather as at that time, rendering the fair itself far less effective than was expected, and involving the citizens in large pecuniary outlays. The citizens, of Watertown, however, with a spirit that did honor to them, resolved again to call upon the Society and show what could be done in the northern section of our State for the advancement of agriculture. And nobly was that call responded to; and taking into consideration the state of our country, the exhibition and attendance was far superior to what was expected. The weather was all that could be desired up to the closing day, and the people of Jefferson rejoiced at the great success of this exhibition, and they received the most cordial commendations from the Society and its officers as well as from the immense number in attendance, for the arrangements they had made for the accommodation of the public as well as for their unwearied efforts to provide for all who visited the fair. The spirit manifested by the citizens of Jefferson is worthy of all commendation, and it is hoped will not fail of finding imitators for all time to come.

Never since the organization of the Society had its annual fair been held under so many circumstances of discouragement as was the fair of 1861. The country in the midst of a contest for the existence of the Government itself, and the mind of the people caused by every force of circumstance to turn aside from the pursuits of peace. The success of the occasion was the more remarkable. It was such a gratification to the friends of agriculture as never before has been afforded them to see that the strength of the people, on and off their farms, was such, and the resources of the agriculturists of New York so powerful, that even in the zenith of the war tens of thousands of prosperous men would come out to the annual gathering which the State Society has had for such a long series of years—held each year with higher evidences of improvement. The northern portion had once before, as herein stated, welcomed the Society to Watertown, but the weather was such as to defeat the results expected. They possessed the ability and the will to ask the Society again to the north, and the most extensive preparations were made.

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There were buildings of convenience and structures suited to all the requirements of the exhibition, and the Society see in this how surely the reward of perseverance has come. In the earlier history of the Society there were all the inconveniences of the temporary and half formed affairs, in which the results of the exhibitors' skill had imperfect opportunity for display. At this fair the people of Watertown had sufficient preparation, and the exhibitor in all his wants found such buildings and shelter secured, and displayed the work of the cattle which he had brought thither, to advantage and under circumstances that secured a first rate exhibition.

The Society refers to the reports and awards of the judges as indicating what the exhibition of 1861 comprised. There is so much preparation for and attention in the examination of the stock and the implements and all parts of the fair, that the result of the judgment given becomes a guide to the opinion of the people, and that which at the New York State Fair is deemed worthy of discriminating reward may truly be considered as having more reward by its merit.

The great pressure of public duties prevented such attendance of the public officials as has heretofore always been cordially given, and as will again be given whenever the soothing influences of quiet shall again be over the country. Yet many of the old and valued friends of the Society, giving a life-long perseverance to the good work begun by them so many years ago, were there to see for themselves how far the New York farmer had advanced.

Our Canadian neighbors, as we expected were with us in great strength. Distinguished members of Parliament honored the Society by their attendance, and such was the friendly feeling of the vicinage that his worship the Mayor of Kingston granted to that ancient town a special holiday, officially, that all might see what their brother farmers across the line were doing to bring forward the good day when the rivalry in winning treasures from the earth should be the only warfare among men.

It is gratifying to know that the Northern people by their large attendance signified their approval of the location of the State Fair among them again. It impressed all close observers with renewed force, that all geographical divisions of the State of New York seemed so powerful in all the resources that make up agricultural wealth, and as coincident with this, all that belongs to

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a free and happy people. It was a result worth all the labor that preceded the fair of 1861.

The address of the Hon. Wm. M. Evarts, drew to its hearing a large crowd, and as he seized the picture of the day and delineated all that was so vivid in it; so vital to the good government of this broad and blessed land; the audience felt the strength of his thoughts. When the annals of the Society shall be fully written, it will be sufficient to point to the roll of those eminent, eloquent and wise men, who have addressed it at its annual festival, to show how high was the public approval of its labors.

Invention, in all its varieties of device to lessen labor and increase product, was at the fair. The Society is now in a condition to ask of the people to judge of their career by its results. It is from the farm where steel takes the place of the wearied arm, that the answer comes, and it is such an answer as tells of a revolution in relation to the toils and cares and time of agricultural work.

With the propitious result of this fair, in the very hour of war, comes the proof that the people of these States are settled as agriculturists. Great cities rise as warehouses and magazines of manufactures, but this vital principle, on which a Nation lives, the food-work, it is to that the farmer comes with a science every year in better control and in higher development. The Society, in witnessing such a gathering of the best implements, the richest cereals, the most productive cattle—even in the ornamental that is formed of foliage and flowers—the luxurious in all the rich varieties of fruit—the Society sees in all this, that their labor of many years is for and to a great good. In this, they express their satisfaction with the trust committed to them by the people of the State, and they believe find a reciprocating confidence in them by the people, and their greater labor and efforts for coming years are encouraged and sustained.

The agricultural discussions at our fairs are increasing in interest and importance. It is found that by combining them with the operations of the fair—in a pleasant and social way—great truths are elaborated, and men, in their own declaration of the results of their labors, are encouraged to do more, to look close and to see for themselves about the inner intimacy of that wonderful machinery of nature which is before us always, and in

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which we are all learners—the man of science only just ahead of the man of labor.

The fair of 1861, is to bear record as a great success, for it met in all hearts more of dread than of hope for its results. It has made it an established fact, agriculture is that great interest of the people from which not even war distracts their serious, earnest, practical attention.

At the close of this year of the Society's operations, it will be seen from the Treasurer's report, that our funds are nearly exhausted. It becomes us, therefore, to make provision for the future, to economize in every department as far as possible, with a due regard to the future welfare of the Society.

The Society has a valuable library worth at least $8,000, and a museum of great value, and with the usual appropriation from the Legislature and a temporary loan for current expenses, it is believed the Society will be enabled to go forward as heretofore, in the discharge of the important duties devolving upon it.

From the report of the Treasurer, it will be seen that the

receipts of the year have been	$12,322 23
Expenditures	11,179 54
Leaving a balance of	$142 69

B. P. JOHNSON,
Corresponding Secretary.

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NEW YORK STATE AGRICULTURAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the New York State Agricultural Society, was opened at the Assembly Chamber on Wednesday, Feb. 12, 1862—the President, Hon. George Geddes, in the chair. The Hon. Marshall P. Wilder, corresponding member of the Society, and Ex-President U. S. Agricultural Society, having been invited to a seat by the side of the President, briefly acknowledged the courtesy extended to him. The Treasurer's Report was read by Luther H. Tucker, Esq., Treasurer, a summary of which is given. The account was certified by the Committee of Finance as being correct and properly vouched; and on motion of J. Stanton Gould, of Columbia, was accepted and adopted.

The following is the summary of the report of the Treasurer:

Luther H. Tucker, Treasurer, in account with the New York State Agricultural Society.

Dr.	1861.	
Cash on hand from last account		$1,792 71
Memberships at annual meeting		48 00
Life Memberships received during the year		70 00
State Appropriation		700 00
do for Dr. Fitch		1,000 00
Interest		11 12
Local committee at Watertown		800 00
Receipts at Watertown fair, including $106 for Life Memberships		7,900 40
		$12,322 23

Cr.	1861.	
Premiums at Winter Meeting		$576 00
Expenses at Winter Meeting		43 54
Premiums and expenses of previous Fairs		122 50
Salaries and traveling expenses		2,865 13

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Salary of Dr. Fitch	$1,000 00
Incidental expenses	126 93
Postages	177 67
Library and Museum expenses	82 29
Printing, stationery, &c	385 28
Premiums, &c., Watertown Fair	4,722 09
Expenses Watertown Fair, for gate-keepers, day and night watch, police, laborers, clerks in office, &c.,	1,122 31
For Superintendents and all other Fair expenses	955 80
Cash on hand to new account	142 69
	$12,322 23

The Corresponding Secretary then read the report of the Executive Committee, in which the proceedings of the Society, and the progress of agriculture in the State during the year, were referred to. (See report ante, p. 3.)

Upon motion of Hon. D. R. Floyd Jones, of Queens, a resolution of acceptance, as regards the report, and of thanks to the Executive Committee, and to Mr. Secretary Johnson, for their services during the year, was passed.

Mr. J. A. Corey, of Saratoga, moved that the Society proceed to select the usual nominating committee of three from each judicial district; in pursuance of which motion the following gentlemen were chosen:

First District—E. G. Faile, S. Leland, John Haven.

Second District—William Kelly, James Wood, D. R. Floyd Jones.

Third District—Geo. Vail, J. S. Gould, Luther Tucker.

Fourth District—J. A. Corey, T. J. Vandeveer, S. G. Smith.

Fifth District—T. S. Faxton, S. D. Hungerford, C. G. Riggs.

Sixth District—Joseph McGraw, Jr., B. F. Tracy, J. A. Rathbone.

Seventh District—D. D. T. Moore, E. Sherrill, Wm. Johnson.

Eighth District—T. C. Peters, H. Bowen, Jr., S. W. Johnson.

After consultation, the committee presented the following report through their chairman, Mr. Kelly, and the officers therein named were then duly elected:

President—Ezra Cornell, of Tompkins county.

Vice Presidents—Thomas H. Faile, New York; Samuel Thorne,

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Dutchess; Herman Wendell, Albany; Oscar Granger, Saratoga; Solon D. Hungerford, Jefferson; Thomas I. Chatfield, Tioga; Patrick Barry, Monroe; Samuel W. Johnson, Cattaraugus.

Corresponding Secretary—B. P. Johnson, Albany.

Recording Secretary—Erastus Corning, Jr., Albany.

Treasurer—Luther H. Tucker, Albany.

Executive Committee—T. C. Peters, Genesee; E. Sherrill, Ontario; A. Hubbell, Oneida; C. I. Hayes, Otsego; W. Newcomb, Rensselaer.

A recess was then taken until 7 P. M., when, after the presentation of some resolutions by Mr. Johnson, on behalf of Mr. P. M. Wetmore, of New York, which were laid on the table for discussion by the Society at their meeting on Thursday, the annexed valuable letter was read from Dr. Fitch, Entomologist of the Society, who was unfortunately prevented by illness from being present in person:

INSECTS THE PAST YEAR.

DR. FITCH'S LETTER.

GENTLEMEN—The past year has furnished an unusual amount of important material for investigation in the department in which I am occupied. And I had contemplated with much satisfaction the account of the year's researches which I should have to present in this address at the annual meeting. I will endeavor to hastily sketch the leading topics I had intended to speak of, and if you deem this will be of any interest to the meeting, it may be read as some amends for my non-appearance.

The insects with which my attention was most occupied the past year, were the *Grain Aphis*, the *Army Worm* and the *Wheat Midge*. And I will aim to notice some of the more important facts that have been thus come to with respect to these insects.

The first of these, the *Grain Aphis*, made its advent in a most remarkable manner. That an insect never seen before, and not known to be present in our country, should suddenly be found everywhere in New England and most of the State of New York, in profuse numbers in every grain field of this wide extent of territory, and literally swarming upon and smothering the crop in many fields, was a phenomenon which probably has no parallel in the annals of science. How it was possible for this insect so suddenly to become thus astonishingly numerous, was a mystery which seemed to most persons to be inexplicable. It is the most

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prolific of any insect which has ever been observed. I find it commences bearing when it is but three days old, and produces four young daily. Thus the descendants of a single *Aphis* will, in twenty days, amount to upwards of two millions, each day increasing their number to almost double what they were the day before. This serves to account for the surprising numbers which we had of this insect.

The *Aphis* was everywhere supposed to be a new insect, and one writer went so far as to name and describe it scientifically, in full confidence that the world had never before known anything like it. My examinations, however, fully assured me that it was identical with a species which has long been known in the grain fields of Europe. And on my announcing this, the erroneous views which one and another were adopting, were speedily abandoned.

Our best European accounts of this insect, however, are very imperfect. They only speak of it as occurring in June and July, whereas I find it is present on the grain the whole year round. And when the grain is but a few inches high, if half a dozen of these insects happen to locate themselves on the same plant, they suck out its juice to such an extent that the plant withers and dies.

As yet I have never been able to find a male of this species. They are all females. This is proved by placing any one supposed to be a male in a vial; next morning two or three young lice are always found in the vial with it. The general habits of insects of this kind are well known. The *Aphis* on the apple tree and other fruit trees, when cold weather arrives, give birth to males. The sexes then pair, and the female thereupon deposits eggs, which remain through the winter to start these insects again the following year. I had supposed it would be the same with this *Aphis* on the grain. I thought, when autumn arrived, I should meet with males and find eggs dropped on the blades of the grain. But there were none. The females and their young continued to appear on the grain till the end of the season. They are everywhere on the grain now, buried under the snow, ready to warm into life and activity again when the spring opens. And on grain growing in flower pots, on which I am keeping these insects in full activity through the winter to notice what I can of their habits, no males have yet appeared. When, and under what circumstances this sex will be produced, is a most curious

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subject, still remaining to be ascertained. It at present looks as though the female and their descendants were prolific permanently, without any intercourse of the sexes.

Last summer, such multitudes of parasites, lady-bugs and other destroyers of this *Aphis*, had become gathered in the grain fields at harvest time, that it seemed as though it would be exterminated by them. But at the end of the season, this insect appeared as common on the young rye as I had noticed it at the opening of spring. The present indications, therefore, are, that this *Aphis* will be as numerous on the grain the coming summer as it was the past, if the season proves favorable to its increase.

As to the *Army Worm*, it may be remarked that for almost a century it had been known that in this country was a kind of worm whose habit it was to suddenly appear in particular spots in such immense numbers as to wholly consume the herbage over an extent frequently of several miles, and then abruptly vanish, nothing being seen of it afterwards. Thus it was one of the most singular and also one of the most formidable and alarming creatures of this class that was known to be in our world. Yet, what kind of worm this was, and what insect produced it, remained wholly unknown down to the present day. Appearing here and there all over the country, the past season, this *Army Worm* became an object of the deepest interest; and from Illinois on the one hand, and Massachusetts on the other, specimens of the moths bred from these worms were sent to me, for information as to what the name of this insect really was. To these inquiries I was able to give an answer so full and explicit that there has been a general acquiescence in the correctness of my decision of this subject.

With regard to the *Wheat Midge*, I would observe that, in a lecture before the Society a few years since, I stated that in this country injurious insects were much more numerous than in Europe, occasioning us far greater losses than are there experienced. I was assured of this fact from carefully comparing the statements of foreign authors respecting the depredations of particular insects, with what we know of the same insects here. But I did not suppose it would be possible to show by any more decisive proof that the facts were as I stated. A year ago, however, I received from France a vial filled with insects as they were promiscuously gathered by the net in the wheat fields of a district where the *Midge* was doing much injury. It then

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occurred to me that, by gathering the insects of our wheat fields here in the same manner, it would furnish materials for a very accurate comparison of the wheat insects of this country with those of Europe. As the result of a comparison thus made, I find that in our wheat fields here, the *Midge* formed 59 per cent. of all the insects on this grain, the past summer; whilst in France, the preceding summer, only 7 per cent. of the insects on wheat were of this species. In France, the parasitic destroyers of the *Midge* amounted to 85 per cent.; while, in this country, our *Parasites* form only ten per cent. And after the full investigation of the subject which I have now made, I can state this fact with confidence: we have no *Parasites* in this country that destroy the *Wheat Midge*. The insect so common on wheat, and which resembles the European *Parasites* of the *Midge* so closely that, in the New York Natural History, it is described as being one of that species, and in the Ohio Agricultural Reports it is confidently set down as another of them, I find has nothing to do with the *Wheat Midge*, but is the *Parasite* of an ash gray bug which is common on grain and grass, laying its eggs in the eggs of this bug, and thus destroying them.

In my lecture a year ago, I stated to the Society that the *Wheat Midge* had wholly vanished the previous summer; not one of its larvæ could I find, on a careful search, over an extensive district around me. But the past season this insect appeared in the wheat again as numerous as usual. This has led us into important changes in our views of the habits of this insect. How was it possible for it to utterly disappear from the wheat one year, and be back in it in swarms the next year? Obviously it must have other places of breeding than in the wheat. And, therefore, if no wheat was grown in this country for a few years as has been so often proposed, it would not starve and kill out this insect. The insect would resort to these other situations, and would sustain itself there, returning into the wheat again as numerous as before, when its cultivation was recommenced. And what could it be that banished this insect from the wheat in 1860, and brought it back again in 1861? The remarkable difference in the weather of these two years furnishes an answer to this question. When the *Midge Fly* came out to deposit its eggs in June, 1860, the weather was excessively dry; in 1861, it was very wet and showery. And thus we learn the fact that these flies cannot breathe a dry, warm atmosphere; they are

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forced to retreat to places where the air is damp and moist. When the uplands, the ploughed fields, are parched with drouth, the *Midge* cannot abide in them; it must go to the lowlands along the margins of streams, where it must remain so long as the drouth continues. Here it must lay its eggs and rear its young, depositing them probably in the grass growing in these situations.

And, hence, we also learn, that if the last half of June is unusually dry, our wheat that year will escape injury from the *Midge;* but if the last half of June is very wet and showery, this crop will be severely devastated. Time forbids my pursuing this subject further.

ASA FITCH.

The President, Mr. Geddes, then introduced Hon. Henry S. Randall, of Cortland, who was present at his request to read a paper upon sheep raising and wool growing. Mr. R. occupied upwards of an hour in a summary review, particularly of the Fine Wooled Sheep of the country, their introduction, character and successful improvement. This paper included several extended tables, and much information gathered from the previous writings of the author and others, as well as by his recent observations in this and other States, and by correspondence with our best sheep breeders. Biased strongly in favor of the fine wooled breeds, few advocates of that class of sheep could have made out a stronger argument in its favor.

At the conclusion of Mr. Randall's essay, Hon. Wm. Kelly, of Dutchess, seconded by Mr. Peters, moved a vote of thanks and that a copy of the paper be requested for the Transactions of the Society. Adopted.

The essay of Mr. Randall will be found among the valuable papers prepared for the Transactions.

The subject of the location of the State Fair for 1862, for which there were proposals, was referred to the Executive Committee.

The Society adjourned to meet at the Agricultural Hall on Thursday.

THURSDAY, *February 13th.*

The Society met at the Agricultural Hall, lecture room, President Geddes in the Chair.

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DISCUSSIONS.

ANALYSES OF SOILS.

The following preamble and resolution (introduced the previous evening by Prosper M. Wetmore, of New York, and laid upon the table,) were taken up:

Whereas, It is of the first importance to the agricultural interests of the United States to be possessed of the best information which the science and skill of the country can command, of the deterioration of the soils of the several States, from cultivation, and also of any remedies which may be known, to lessen or counteract such deterioration; therefore,

Resolved, That the Commissioner of Patents be requested to procure and report to Congress analyses of the arable lands of the United States, showing the percentage of proximate organic and inorganic fertilizing elements contained in their cultivated depth; also, the annual yield of the same crop on the same soil from the first to the latest cultivation; also, the estimated amount of fertilizing material in crops annually exported from the United States.

On reading the preamble and resolution, Mr. Geddes remarked that he did not believe the soils of the country were deteriorating—hence the basis of the resolution was erroneous. In Mr. G.'s opinion our soils were increasing in fertility, rather than deteriorating, as assumed by Mr. Wetmore, and gave cogent reasons for the opinion expressed. He trusted the Society would not endorse an assumption so fallacious as that embodied in the preamble.

Mr. Wm. Newcomb, of Rensselaer, said that from forty years' experience as a practical farmer, he was of opinion that our soils were *not* deteriorating, as assumed, and therefore opposed the resolution. He had little or no faith in the analysis of soils as a remedy, even if the assumption of deterioration were true, as his experience led him to believe that little dependence could be placed upon analyses.

Hon. A. Osborn, of Albany, did not believe our soils were deteriorating, nor, if they were, that analyses would prove reliable. The Judge related some of his experience in analyzing soils; that he found a similar result in testing both poor and rich soils, and concluded that proper cultivation, the liberal use of the plow and hoe, must be the main dependence.

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Other gentlemen, practical farmers, opposed the resolution, contending that by proper culture, rotation, plowing in clover, &c., our soils would continue to increase in fertility, or at least not deteriorate.

Hon. T. C. Peters, of Genesee, after some remarks pertinent to the subject, offered the following substitute, which was adopted:

Whereas, it is important to the agricultural interests of the United States that the most reliable information should be obtained with regard to the effect of the continued cultivation of our soils upon their fertility; therefore,

Resolved, That the Commissioner of the Patent Office be requested to institute such inquiries, and take such action as may be necessary to determine whether their fertility is increasing or diminishing.

TAX UPON DOGS.

The President then announced the question selected for discussion to be the propriety of the law now before the Legislature, authorizing a tax on dogs.

Mr. Newcomb, of Rensselaer, was in favor of taxing dogs. Some people who kept dogs, and the worst class of curs, thought more of them than they did of their wives and children, and made better provision for them.

Judge Osborn thought the tax would not obviate the evil. To tax unproductive property was wrong in principle. You must tax productive property in order that the owner may be able to pay.

Mr. E. Sherrill, of Ontario, was surprised to hear Judge O. oppose the tax law. He was in favor of taxing dogs, and related instances in which the poor class of whelps and sheep-killers had destroyed flocks of sheep in his locality. Mr. S. would tax every dog $5, and more if necessary to exterminate the race of whelps. What we want is, to make the four hundred thousand or more dogs in this State *pay*. People who have favorite dogs would be willing to pay a tax, to abate the nuisance of worthless curs. Mr. S.'s remarks were earnest and eloquent, eliciting applause from the audience.

Mr. Peters was in favor of dogs and opposed to them. There were full five hundred thousand in this State, and he thought the number ought to be *cur*-tailed. He had a favorite shepherd dog, now past being useful, which he thought much of. Others had

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their favorites; gentlemen in cities and villages keep their "pointers" and "setters," to aid in killing the little birds when they go into the country. Mr. P. was in favor of a tax in order to reduce the number of dogs, but would not go as high as $5. Some years ago he succeeded in getting a tax on dogs, from the board of supervisors, which reduced the number of curs. But it was opposed, and men *barked into office* who were in favor of repealing, and the result was that the law was repealed. Mr. Peters concluded by offering the following:

Whereas, this Society has learned that a proposition is now before the Legislature of this State to protect the raisers of sheep by a tax on dogs; therefore,

Resolved, That it is the judgment of this Society that the interests of the public demand that such a law should be passed as will protect, as far as is practicable, the raising of sheep from the depredations of dogs.

Mr. Ex-President Conger, of Rockland, alluded to statements made by the Ohio Agricultural Society relative to injury to sheep in that State by dogs. He thought the statistics alarming. Mr. C., however, while favoring a tax on dogs, would make a discrimination; he would not put the same tax (if indeed any) on a shepherd dog as on a common one. So also of ratters and poodles—the latter could not injure sheep.

Mr. Geddes remarked that the tan terriers were among the worst enemies of sheep; he had just destroyed one because he killed sheep.

Mr. Peters said that terriers and untrained shepherd dogs were the worst class of dogs—death on sheep.

Mr. C. L. Kiersted, of Ulster, was in favor of taxing dogs enough to exterminate them. He would not discriminate, but tax all alike. It would not do to favor any party. He liked dogs, had two, and was willing to pay $5 a year on each. No man would keep a worthless dog one year if taxed $5.

Hon. H. S. Randall, of Cortland, said he had no dogs on his farm, nor did he want any. Even the shepherd dogs were more bother than benefit; the men and boys were always trying experiments with them, to see what they could and would do, &c. He spoke of the Spanish shepherd dogs, and of their value in their own country, but showed they were not what we wanted. Mr. R. was opposed to the whole race of dogs. Put the tax as

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high as you can, and let it be rigidly enforced. People all over the country were prevented from keeping sheep on account of dogs.

Hon. E. Cornell (President elect), of Tompkins, related that in traveling through the mountainous region of North Carolina, he thought it admirably adapted to wool growing; mentioned it to the people, but they said no, they could not grow wool there. On inquiring why, he was told that some gentlemen had, years before, organized a company, bought one thousand Vermont sheep, and a large tract of mountain land. They bought negroes and dogs to take care of the sheep. The negroes, sheep and dogs were turned out on the land together; but the next year, when looking for the sheep for shearing, they could find few negroes, sheep or dogs. The dogs had destroyed most of the flock. Mr. C. spoke of the great damage from dogs in Ohio and New York, giving statistics of some counties in this State. The present dog law is not properly understood—is construed differently. In some counties the supervisors tax sufficient to indemnify loss, but in others no tax is levied. He thought the Legislature (of which Mr. C. is a member) now having the subject under advisement, would tax $1 for the first dog and $2 for the second, owned by same person; $3 for one bitch and $5 for second. Mr. C. would like to hear the views of those present on this scale.

Mr. Sherrill offered the following resolution:

Resolved, That a committee of three be appointed by the President of the Society to confer with the present Legislature, and urge the passage of such a law as will protect the farming interests from the destruction of sheep by dogs.

Mr. Bogart "stood up for the dog." Heaven created the dog as well as the sheep for a wise purpose. He asked (and would like to have Mr. Randall respond) why the English kept so many dogs among their sheep and other stock, if they were so injurious, &c. Mr. B. made other remarks, more eloquent and facetious than plausible, and evidently because no one else had defended the canine race, or offered any resistance to the "swift destruction" to which several speakers would hurry the entire tribe.

Mr. Randall replied that the English required dogs for watching, &c., as they had no fences, but that their sporting and hunting dogs were kept confined, not allowed to roam at large. Mr. R. (in reply to a remark by Mr. Conger) stated that not one

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American wool-grower in fifty kept a shepherd dog. He had just returned from a visit among the sheep-breeders and wool-growers of Vermont. Mr. Hammond, and other leading sheep men, had no shepherd dogs; indeed, he did not see one in Vermont.

The President (Mr. Geddes) thought the greatest damage caused by dogs was in their deterring people from keeping sheep; that thousands were prevented from keeping them for this reason. The sheep of this State have largely decreased in a few years on this account; the ravages of dogs among flocks, especially near villages and cities, rendering the keeping of sheep extremely hazardous and unsafe, and certainly unprofitable.

Mr. Cornell stated that the sheep of this State had fallen off about one-half within the past twenty years. In 1840 we had 5,118,779 sheep, but five years later, in 1845, the number was reduced to 4,505,369. During the next ten years the decrease was over a million, for in 1855 the census showed only 3,217,024. The decrease has probably been much greater, in proportion, since 1855.

After some further remarks the resolutions were unanimously adopted. The discussion was interesting and animated throughout, and we regret our inability to give a more extended report. Could it have been heard by the members of the Legislature, we think the propriety of taxing dogs would not long be questioned by that honorable body. Adjourned till evening.

Thursday evening the Society was again convened, President Geddes in the chair. The reading of the reports of committees and the awards of premiums was the first business before the Society. The reports and awards will be found in a subsequent portion of the report.

Mr. Geddes, the retiring President, delivered his valedictory address, and at its close introduced his successor, Mr. Cornell, who addressed the Society as follows:

MR. CORNELL'S REMARKS

ON TAKING THE CHAIR AS THE NEWLY ELECTED PRESIDENT.

Gentlemen, Fellow Members of the New York State Agricultural Society:

I am very unexpectedly called upon to thank you for this expression of your confidence in electing me as the President of your Society for the ensuing year.

Your partiality reposes a trust in me of which I have a grate-

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ful appreciation, though its just and proper fulfillment carries with it the most weighty responsibility.

I should have hesitated, if I did not recognize the necessity of declining the acceptance of this high and honorable trust, was I not assured, by my past acquaintance with many of your former officers, your executive committees, and members of the Society, that their prompt, able and efficient support will, at all times, be freely given to their presiding officer in the faithful and conscientious execution of whatever duties the interest of the Society, and the higher and more important interests it represents, demands at his hands.

I feel a just pride, gentlemen, when I glance over the pages on which are recorded the past history of this Society, guided as it has been from infancy to vigorous maturity, by the public-spirited and noble men who have been the pioneers in the development of the agricultural resources of this great State, and who have stamped the impress of their noble examples upon the Society, giving it character at home and abroad, and endowing it with powers of usefulness which surpass those of any similar organization in our country.

It is in the footsteps of such men you have decreed that I shall attempt to tread. Well may I hesitate, ah! almost falter, under the weight of responsibilities that rest upon me, when I call to mind the proud array of eminent names of those who have stood in the same relation to your Society that I now assume—names that we all venerate for their patriotic efforts in behalf of the great work in which we are but humble colaborers.

The utmost ability that I possess, gentlemen, humble though it be, I earnestly pledge, standing here in your presence, to the noble cause thus honorably inaugurated, and ably sustained by my more immediate predecessors.

To the honorable gentleman now about to retire from the presidency of your Society, who has so ably and faithfully presided over its destinies the past year, I especially appeal for a continuance of his valuable co-operation and advice in all things that will tend to promote the interest of the Society, and elevate the standard of intelligence, and increase the measure of production of agricultural labor throughout our State and country.

To our venerable and worthy Secretary, whose locks are silvered by the weight of years in the service of the Society, and whose valuable services you have so wisely determined to retain

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in the interest of the Society, I shall look for such support and guidance in the discharge of my duties as his long and responsible connection with the Society, first as its President, and for many years its Corresponding Secretary, will enable him to give.

To the Executive Committee I turn as to the source of power that is to vitalize and give propulsion to the Society, and put its manifold machinery in motion, through which the results of the year are to be worked out, and the labor of productive industry guided to new triumphs and new honors.

I also appeal to the Executive Committee for the auxiliary power of a good general committee, which the constitution of the Society places at your disposal, and which, if judiciously selected, of good working material, can render important service in fostering the interest of the Society in the several counties of the State.

The annual collection of the statistics of agricultural and horticultural productions, and improvements throughout the State, I deem of the highest importance, and the first essential step towards intelligent and permanent improvement, and earnestly solicit the co-operation of all members of the Society, and all friends of improvement, in securing this important result.

With these suggestions, and again thanking you for this flattering mark of your confidence, I await your further pleasure.

On motion of Hon. B. N. Huntington, the thanks of the Society were presented to the speakers for the addresses delivered, and that the same be published in pamphlet form and in the Transactions of the Society.

On motion of Mr. Johnson, the bill before the Legislature for the collection of agricultural statistics, was commended to the favorable consideration of the Legislature.

ENTOMOLOGIST OF THE SOCIETY.

On motion of Hon. Wm. Kelly, that, in view of the great value to the agricultural community of Dr. Fitch's Entomological investigations, and especially of those in which he has been recently and is now engaged, the continuation of the present annual donation by the State to support these investigations, should not be overlooked or omitted in the appropriations of the present winter.

Hon. Mr. Conger presented to the Society several pamphlets

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explaining a new process of unbranning wheat before grinding, which he commended to the consideration of the members of the Society and others.

The Society then adjourned, after a pleasant, harmonious and useful session, which, if not so fully attended as has sometimes been the case, had drawn together a fair representation from various parts of the State, including many of the oldest and warmest supporters of the Society's operations.

EXECUTIVE MEETING—NEW BOARD.

FEBRUARY 14.

Present—Hon. Ezra Cornell, President; Hon. Benj. N. Huntington, A. B. Conger, Ex-Presidents; Herman Wendell, Vice President; Luther H. Tucker, Treasurer; B. P. Johnson, Secretary.

On motion of Mr. Huntington, Mr. Johnson was designated as the Acting Secretary; salary and assistant same as last year.

Committee of Finance—Messrs. Huntington, Conger and Sherrill.

The question of location of fair was postponed until the next meeting of the Board, and proposals are invited from places desiring the fair; and the Secretary will furnish the requirements of the Society on application.

Vice Presidents of the Society are desired to ascertain and furnish to the Secretary, previous to the next meeting of the Board, the names of at least three persons in each county, who will agree to take charge of the collection of agricultural statistics.

1,000 copies of the annual address of the President, were ordered published in pamphlet form.

The Treasurer of the Society was authorized, should it be necessary to do so, to procure funds necessary to meet the current expenses of the Society.

The President and Secretary were authorized to call the next meeting in March, at the Agricultural Rooms, Albany, on such day as they may select.

B. P. JOHNSON,
Secretary.

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REPORT IN RELATION TO THE OHIO FAIR.

BY E. CORNELL.

To the Executive Committee of the New York State Agricultural Society:

Gentlemen—In pursuance to your appointment, I had the honor to visit the annual exhibition of the State Agricultural Society of Ohio, which was held at Dayton, commencing the 10th of September, 1861.

This was the twelfth annual fair of Ohio held under the auspices of their State Board of Agriculture, and I think it fully met the expectations of the friends of this primary branch of industry, under the circumstances, that, at the time, and during the entire previous summer, a most gigantic and wicked rebellion was raging in several of the States of this Union, and that Ohio, in unison with her loyal sister States, in response to the national call, had made large drafts upon the agricultural labor of the State to furnish armies to suppress the rebellion.

The location of the grounds upon which the exhibition was held, was a convenient distance from the city of Dayton, on the very beautiful and convenient grounds of the county society. The arrangements for the fair were ample, and of the best character, giving proper shelter and protection to all kinds of animals collected for exhibition, and to the various other articles which stand as the representative of the industry of a great State, and contribute so largely to the interest and success of a State Fair.

The show of cattle was not as large as on several former occasions, but among those exhibited were several fine animals. The herd of D. McMillen, Jr., of Xenia, was represented by Belted Knight, by the Duke of Gloster; the Duke of Oakland, by the first duke of Thorndale; Lady Watson, by Billy Harrison; Sunbeam, by Colonel; Darling, by Czar; Jessey, by Star Light; Eliza, by Marquis; Sunbeam, second, by Nelson Gwinn; Sunbeam, fourth, by first Duke of Thorndale, and several others, all animals of high merit, and in the finest show condition.

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The Springfield herd of C. M. Clark, Esq., was represented by that truly noble animal, imported New Year's day, by Magnet; Easter Day, by Lord Marquis; Dave, by New Year's Day, and several others, all superior animals, and in the best show condition.

W. Palmer, Esq., of Bloomington, presented the old imported Warrior, and three bulls and two heifers of his get, as the representative of his herd.

There were worthy representatives on the ground from several other herds, that I have not the minutes from which to particularize.

There were, also, several fine specimens of fat cattle on the ground, but the difficulty of procuring particulars in relation to ownership, method of feeding, &c., prevents my giving them a more particular notice.

The grade Short-horns were represented by a few very creditable animals, but the number of grades of all kinds were too limited to form a distinct feature of the fair, or to justify a more extended notice.

Devons and Herefords had scarcely a representative on the ground; none, in fact, that admirers of those breeds of cattle would acknowledge as fair specimens. It seemed to have been the policy of the Board of Agriculture of Ohio to discourage the introduction of other breeds than Short-horns into that State. Or, at least, to withhold encouragement, by omitting to offer premiums for other breeds at their fairs, which policy they justify by the assurance that it is not for the interest of the State of Ohio to encourage the introduction of other breeds; as all having been tested fully, the Short-horns are found so far superior as to give them the unquestioned preference in Ohio.

In the Department of Horses, the exhibition was a decided success, the number on the ground being large, and many superior specimens of this most noble animal entered the ring as competitors for the various prizes offered by the Board. The thorough bred horse, the Cleveland Bay, the Clydesdale, the Blackhawks, and other breeds were worthily represented; but the difficulty I encountered in my efforts to learn the particular history of each of those noble animals, deters me from any attempt at a more special notice of them.

The ring was well conducted while the horses were on exhibition before the various awarding committees, and their exercises

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formed a pleasing feature of the exhibition, and attracted a large collection of visitors, and, under the circumstances of a rather soft track, caused by the recent rains, the performances were creditable.

In the Department of Sheep, the extensive range of pens were well filled, and the breeds most common to our country were represented by worthy specimens, but were generally in charge of persons who could give no positive information in regard to them, beyond the fact that they were an animal generally known in the country under the name of sheep.

There were several fine lots of Spanish and Silesian Merinos, and information upon which, the relative merits of the different breeds depends, obtained from carefully conducted experiments, upon a large scale, and the results observed and noted with accuracy, would have been valuable, but could not be obtained. In this respect, however, the sheep men of Ohio do not differ essentially from those of our own State, they are liable to become wedded to their favorite breed, without being able to give any reasons that would command the respect of an intelligent inquirer, who might desire to engage in the business, and was in pursuit of information upon which to determine his choice of breeds.

The Swine pens were generally filled with good specimens of the most popular of the improved breeds and their various crosses upon the descendants of the landpikes of other days. The first impression that the mind receives on viewing these sleek and well-fattened animals, are associated with extensive fields of well-ripened corn, and huge piles of mess and prime pork. It would not be deemed an extraordinary feat to cut a barrel A No. 1 mess from between the shoulders and hams of such hogs as could be selected from many of the pens.

Sixteen cages arranged upon a table near Floral Hall contained all the contributions of Poultry, representing turkeys, geese, ducks, chickens and pigeons. Nothing here that would excite very severe paroxysms of the "hen fever."

Of the indoor exhibitions I first made the tour of "Farm Implement Hall," where I found the farmer's labor-saving machinery in profusion, and the farmers industriously employed in examining and comparing the merits of the various machines.

Power Hall, which came next in turn, was supplied with ample power, which was transferred to a long line of shafting, from a

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very pretty and smooth working engine, but the space was illy occupied, and at least three-fourths of it remained vacant.

Mechanics' Hall. On entering this hall I first met a large assortment of superior wooden ware. Pails of red and white cedar, black walnut and butternut; tubs for the wash room, and for plants, made of various woods, and a great variety of sizes, all of the very best workmanship.

Domestic Hall. This hall was about two-thirds occupied, with coverlids, counterpanes, rag carpets, needlework, sewing machines, knitting machines, and worsted pictures, many good articles, and, as a whole, would have made a creditable show for a county fair.

Floral Hall was handsomely decorated, displaying much taste and industry, for which the ladies of Dayton, who mainly executed the work, are entitled to much credit.

The floral kingdom was creditably represented in this hall, as far as its space was devoted to the display of her charms.

The Orchard was here represented also, and on the north side I found ninety varieties of apples, from H. H. G. Smith's nursery, Toledo, fruit generally fair, and some specimens very superior. Nine varieties, all presenting good specimens, by Mrs. M. Ramsey. G. W. Campbell, of Delaware, exhibited fine specimens of the following grapes: Rebecca, Delaware, Diana, Catawba, Green, Concord, Logan, Isabella, and Rodgers Hybrid No. 2, No. 9, No. 4, and No. 19, grown in open air, and some dozen varieties of the most noted exotics, under glass, some superior specimens. Several other gentlemen exhibited fine specimens of grapes in lesser quantities.

The display of peaches was large, and specimens very superior, furnishing a very attractive feature to the hall.

W. Heaver, of Cincinnati, exhibited 65 varieties of pears, specimens medium, generally inferior to the pears of New York. A few specimens presented by other parties were very fine.

A few specimens of plums, apricots and quinces passed, brings us to a display of one hundred varieties of wild fruits, nuts and berries, a novel and interesting feature, with which we will take our leave of floral hall, well pleased with its attractions.

The Hall of Farm Products was a shabby representation of the great State of Ohio, though it presented many fine specimens of vegetables, grain, and other farm products, but it was faulty in its meager proportions, perhaps there is not a farm in Ohio

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that could not easily make a better show, only about one-eighth of the space being occupied.

Outside of the halls there were many articles on exhibition that did not require the protection of shelter. Some of the most important of which were several sugar mills and boilers, which were busily employed in crushing the juice from the sorghum stalks, and boiling it to syrup, and even to granulated sugar.

The improvement in this machinery has been such within a few years, as to justify the conviction that the time has arrived when our Northern and Western States can supply themselves with a good article of syrup and sugar from their own fields at a very moderate cost.

With these brief remarks, and an acknowledgment of my obligations to the Managers of the State Board of Agriculture, and to the other gentlemen, whom I met, for the various courtesies extended to me during my visit, I respectfully submit the subject for the consideration of the Executive Committee.

E. CORNELL.

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ADDRESS DELIVERED BEFORE THE NEW YORK STATE AGRICULTURAL SOCIETY, AT THE ANNUAL MEETING, ALBANY, FEBRUARY 3, 1862.

BY GEORGE GEDDES, PRESIDENT.

Gentlemen of the New York State Agricultural Society:

Although agriculture may truly be said to have been the chief employment of men from the beginning, yet, of all their pursuits, it may be as truly said of it that it has been conducted with the least system, and with the least scientific application of knowledge derived from experience. The causes of this unsystematic and unscientific prosecution of this greatest business of man are various, and would require too much of our time to fully investigate now, and they will be alluded to only as they may come to the surface in the prosecution of the investigation of the means this Society has called into use to overcome them.

The New York State Agricultural Society has held twenty-one Annual Fairs, and has been long enough before the public to have a character and standing of its own. During its existence other societies have arisen of far greater pretensions—have run their career, and ceased to be. For a short period they have bid fair to take from us the leading position in the work of improving the agriculture of our country. We, unmoved, have pursued the even tenor of our way, never failing to appear before the public, with our shows, once a year, whether pestilence or war devastated the country. We have confined ourselves, with great strictness, to the single object before us—keeping it constantly in view that our business was to promote improvement in agriculture, and the industry that is connected with it. We have constantly refused to allow any extraneous objects, however interesting they may have been, to interfere with our exhibitions, though, by so doing, we may have suffered temporary loss to our treasury. Have we

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labored in vain, or has our work been sufficiently successful to justify us in saying that we can point to the evidences of our triumphs?

I direct my attention to the answering of this inquiry.

Previous to, and until the commencement of our annual shows, the agriculture, not only of this State, but of the country generally, was, in the main, a matter of mere routine. The son, generally, followed the practices of the father without thought as to the reasons why he continued the same round year after year. There were then very few men who knew anything in regard to the quantity of power required to draw the plow to break up the green sward for their summer-fallows. Whether three hundred or six hundred pounds were required—who knew? Then, too, the ground must be plowed three times to raise one crop of wheat—but why? Hardly a man then asked the question. That first, great implement, the plow, was constructed, by each manufacturer, on such principles as he judged correct; and hardly any two agreed as to these, except to say that there must be a beam, handles, mouldboard, landside and point. But how deep, how wide shall the plow make the furrow? Shall the ground be broken and disintegrated, and left light, or shall it be reversed in such a way as to disturb the particles of the soil to the least possible extent, so that the furrow-slice shall fall flat into the space, or shall it lap?

Once in a while a curious and investigating individual might ask himself these questions, but how could he answer them? Agricultural papers gave an arena for discussion, but no place for certain determination. Following up this single implement, and noting the improvements made in it during our Society's lifetime, and under its auspices, we will see that if we had done nothing else but improve the plow we would not have labored in vain. Each of our plowing matches has been a trial of plows as well as of plowmen; and, in addition to these, a special and full trial was had near this city in the year 1850. The results arrived at then have been sustained as correct, not only by the practical farmers of this country, but the World's Fair held ten years ago in England. The triumph of this State, as then pronounced by a jury of distinguished men of nearly every civilized nation, was greatly, if not entirely, due to this Society. The prize plow of that trial has gone over the world, and has triumphed over English prejudices not only in Australia but in England

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itself.* The manufacturers of this State now know how to make a plow to do the work that may be required of it in the best manner, and with the least power; and the farmers, at least many of them, now know when they have the plow that they really require. These remarks are true not only of the ordinary surface plow but of the subsoil and double plows.

With the improvement of this leading farm implement has grown a taste for perfect plowing, and, for land freed from obstructions, that would present good work. The samples given at our plowing matches, to audiences composed of many thousands of farmers, have been standards for these spectators; and everywhere good farmers require work equal to these standards. With these advances the old-fashioned summer-fallow has nearly gone out of use, except to kill some noxious weed. One good plowing, eight or nine inches deep, is now the order of the day, and has generally taken the place of the three scratchings of the surface practiced aforetime.

To follow our improved plows, we have improved harrows and wheel cultivators; and, to sow our grain, we have drills that are greatly simplified and improved, and cheapened, from the English implement. When we come to harvest our grain we have the reaper drawn by horses, doing the work far more perfectly than it can be done by hand labor at the same cost; machines, drawn by horses, cut and spread our hay not only better than the work can be done by hand, but at a great saving of cost.

The mower and reaper have come into use in our own time. In the year 1852 we had a public trial of these, and some other tools, at Geneva. There we brought, face to face, the inventors and manufacturers, and caused them to see and compare with each other; while our committee, in the presence of a great number of practical farmers, subjected everything submitted to them to the severest tests we could devise, and arrived at results that went before the whole public, and which, I am proud to say, time has sustained. The influence of this trial was most valuable. Each inventor and manufacturer went home a wiser man,

*American Plows.—The London *Mark Lane Express* says: "The Americans have driven our plow makers out of the Australian, Indian and Colonial markets, owing to their lighter and cheaper articles. Unless our makers bestir themselves here, by using steel instead of heavy castings, they will be likely to be 'beaten on their own ground.'" It might have been added that, to a great extent, America is supplying the Continent with her agricultural implements, and if we shall be well represented in the International Exhibition of 1862 we shall largely add to our markets for American implements and manufactures.—*Journal of Society.*

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and the next year showed very great advances, Progress was made by this trial that otherwise, probably, would not have been made in many years; and though these implements are now greatly in advance of those shown at Geneva, there is still room for improvement, and the time for another thorough trial has fully come. In my opinion, the reaper and mower are rapidly approaching perfection. I think that they are essentially two and distinct implements, and, except for quite small farmers, should not be attempted as a single, combined tool. The reaper should not only cut the grain, but, without the assistance of more than the driver, should cast it off in convenient gavels, and may, without an unreasonable expenditure of power, cut a wide swath. The mower should cut a narrower swath, and may be of much simpler construction than the reaper.

The minor tools used in farming have been quite as much improved as the more important ones I have named. Take, as an illustration, the rake. We thought the revolving horse-rake was a great thing, and it really was; but it is likely to be superseded quite as effectually as it has the old hand-rake by one that has wheels, and on which the driver rides. With such a rake work was done on our own farm last year that the revolving rake could not do at all. A piece of spring wheat had been cut with an ordinary hand-cradle on a side-hill too steep for the reaper, and the young clover, over a foot high, with the heavy stubble, would break and destroy the revolving horse-rake; but the wheel-rake, in four hours, went over the thirteen acres, and saved twenty-four bushels of wheat. A man can drive a horse before this easy-drawing wheel-rake, riding in a comfortable seat, much farther in a day than he can follow and attend to a revolving rake.

We have the horse-pitchfork; that is well spoken of by those that have used it. We have machines for sowing fertilizers—such as common plaster of Paris—that will sow broadcast, with nearly mathematical accuracy, thirty acres in a day, drawn by a pair of horses, and tended by one man. So that we have now reached a time when we plow, harrow, drill in the seed, sow the gypsum, cut the grain or hay, rake it, and pitch it into the mow by horse power. Thus the severe toils of the husbandman have been lightened and cheapened by the inventive genius of our mechanics—guided and fostered by this Society. Time will not allow the further pursuit of this subject of improvement made

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in our agricultural tools. Enough has been said to justify me in affirming that, without these and other improvements, our farmers would have found it difficult, perhaps impossible, to have sustained themselves against the competition of the cheap lands of the new States west of us. Deprive us of the benefits growing out of the improvements in our tools, made within the last twenty-one years, and our farms would decrease in value so much that the tax-gatherer would meet anything but a kind reception.

But it is not tools merely that we have improved. The farm stock has undergone quite as marked a change during our existence. Previous to our fairs there were few good judges of the various classes and breeds of farm stock; and there were very few good animals in the State. What was known as native cattle abounded—and many knew them well—but there were few that tried to improve them by skilful breeding or generous feeding. The same may be truly said of sheep and swine. The great mass of our farmers had then never seen an improved Durham, or Devon, or Hereford, or Jersey, or an Ayrshire. It is true, there were in the State various public-spirited individuals that were cultivating a taste for fine cattle, and who had, for that day, good specimens. But the great mass of men had never seen them, and but for our fairs never could have seen them. The owners of these animals had very little encouragement as breeders, because they could not bring their animals before the public. Until a field was provided, in which all the best animals could be shown side by side, we could neither have a general love and taste that demanded excellence, nor could we have sound judgment in regard to different breeds, and different animals of the same breed. No man can visit a herd of cattle and then ride fifty miles, and seeing another, make a just comparison between them. It is necessary, to the formation of a correct judgment, that the animals should be seen side by side. It is necessary, to the formation of public taste for fine animals, that good samples should be placed before the public in great numbers. It may not be generally thought of, that the premium won is really the least thing, in importance, of the several points aimed at in bringing animals into competition at our shows. The breeder desires the credit of winning, and the little piece of ribbon on the bull's horn, that says—that, in the judgment of the learned committee, he was the best animal of his breed and kind

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on the ground, is of far more consequence than the few dollars paid by the Society. Twenty-five thousand spectators look on, and not only see but freely criticise the awards. And these twenty-five thousand persons are being educated into a knowledge of the points and excellences of these animals. We have, all of us, experienced the pleasures and benefits of this kind of instruction. I knew of a man who brought his bull from the extreme end of one of the longest counties of this State to its centre to win the first premium—sure. In the limited circle in which this man lived and moved it *was* a good bull—they thought, a first-rate bull; but at the county seat, alongside of the high-bred Durhams, Devons, &c., he was fairly distanced, and was likely to become the point of the ridicule of the crowd, until his owner frankly announced that he had learned enough about bulls to pay him for coming to the fair, and that next year he would meet them again. This man learned something that will do the world good. Bulls, of the best breed, figured in his yard after this experience, and not only he, but his neighbors, used this increased wisdom as the basis of increased wealth.

The impulse given by our Society to the improvement of cattle has led to a very wide diffusion of the blood of the best breeds, and our people are everywhere rapidly acquiring information as to the points of excellence of the different breeds, and the localities and circumstances best adapted to them, and to which they are best adapted. Our enterprising breeders have spared no expense that was necessary to have the best animals of the several breeds; and the time has come when England is buying of this State some choice specimens of its own favorite breed. The boldness of our leading breeder of Short-horns, that led him to bring here the best individuals of that breed, without regard to cost, is meeting its reward in the demand, from England, for their progeny.

The improvement made in the swine of this State is marked. When we began to hold our fairs it would have required, in most of our counties, a day's ride to find a pair of first-rate swine. Now, it is the other way, and good animals are the rule, and poor ones the exception.

In sheep the improvement has been most decided. The varieties best adapted to the production of mutton are now receiving that attention that their merits demand. Importations have been made of the best individuals that could be procured, and

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there is no reason to doubt that very soon we shall prove as successful in mutton sheep as we have been in the improved breeds of cattle. Twenty-one years ago most of our sheep belonged to the fine-wooled varieties, and they sheared from two, to two and one-half pounds of wool each. Now the fleeces of most of our flocks yield full twice as much, and some flocks average as high as six pounds.

At the first show of our Society a discussion grew up between two leading wool growers—one of Onondaga county, the other of an adjoining county—as to the possible weight of a year's growth of well washed merino wool a first-class ram of that breed could be made to produce. The argument became quite animated, and, at one time, looked like resulting in a bet that no ram could be produced that would give twelve pounds. Now very few raisers of fine wool sheep will consent to breed from a ram that does not produce twelve pounds a year. The animal that, twenty-one years ago, it was supposed, could not be found, is now as common as the first-class flocks. What an advance this single circumstance shows; and how well it illustrates the advantages of our Society's annual fairs. These two breeders would, perhaps, have never seen each other but for our fair. Each of them thought he was the owner of the best flock of fine wooled sheep. The result of their becoming acquainted was, they became purchasers of each other.

These acquaintances, formed at our meetings of improving men, is a matter of very great importance not only to them but to the public. That numerous body of men that seek the means of agricultural improvement cannot dispense with these meetings, for it is here that they come together, and are brought into communication with each other. By bringing these men to act thus in concert, the knowledge that each acquires has some chance of being preserved, and put into such shape that it becomes accessible to such persons as are unable to receive the benefits of these meetings except through our printed records. An important point with us, from the first, has been to preserve the knowledge we acquire in our annual volume of Transactions. Twenty of these volumes are now before the public; and it is not too much to say of them, that whoever possesses the entire set has the best work on agriculture extant. Though a large portion of these volumes is necessarily made up of the mere records of the operations of the State and County Societies, and is, therefore, of

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very little interest to the general reader, yet there is enough of matter of general interest in each volume to render it of great value to whoever desires to know what is being done by the best farmers all over the country. There is hardly any important question now under consideration among agricultural improvers that is not ably treated in our Transactions, and they are a rich mine from which any person who desires to edit the best work ever printed on agriculture can draw material. These volumes have given not only our Society, but our country, character beyond the seas, and we point to them as the monuments we annually set up of our progress.

At our meetings questions, involving important agricultural interests, are submitted to the whole Society for discussion, and, so far as is possible, for determination. The discussions thus obtained have been widely spread over the country by the newspapers, and the positions assumed by the gentlemen who take part in them are subjected not only to the criticisms drawn out by the occasion, but to such strictures and comments as thinking and experienced men, everywhere, may see fit to make. Latterly, we have taken votes at these discussions, and have ventured to put on record our conclusions. Future investigations, and still more elaborate discussions, may reverse some of these votes now taken; but this we shall not regret, as it is truth that we seek, and we have no pride of consistency to maintain. The great value of these discussions lies in this: the common, every day processes of the farmers are subjected to criticism by practical men, and thus we elicit much real information from a class of men who, perhaps, cannot be induced to write out their views for the press, and who, from a life-long experience, do possess vast funds of facts that they have no means of generalizing or reducing to order, and the knowledge of which, in many cases, would die with them unless they can be induced, in some way, to yield them up to the public.

This is a progressive age, because the disposition to preserve knowledge is general—and facts, once determined, are preserved. It will not be charged, by those that come after us, that we allowed our discoveries to be lost. Had all the facts ever known, in regard to the best manner of conducting the various processes of farming, been preserved, and could they now be arranged before the scientific men of this age—the general laws, about which we now differ, might, some of them at least, be

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determined. We, as a Society, have aimed in all practical ways, to put safely on record everything we learn, or that we think we learn; and we devise new ways, and use all known old ways to gather facts. We are not content to appear before the public yearly at a fair, and again at our winter meeting for business. We keep these rooms open at all times, having here a permanent secretary to give information, and to carry on our extended correspondence. We are collecting a valuable agricultural library and museum; and this place is becoming the point of greatest attraction at the capital city of our State. Here the inventor of a new machine or implement, useful to the farmer, comes and deposits a sample, knowing that he will thus show his wares to more observing men than at any other point in the country. Tools are sometimes sent here to be tested by some of our members, and opinions, as to their value, asked. Machines, that are not immediately connected with agriculture, are often sent to our Society from distant States, and the manufacturers of them seek the awards of our committees as the most valuable recommendations they can procure. In short, we have here a Bureau of Agriculture for the State of New York. While the national government has been discussing the subject, this State, through this Society, has established one for not only us, but for the whole nation, and this, too, without making or marring the fortunes of a single politician. Here our Society stands, with one hand extended to the student of science and the man of inventions, the other, grasping that of the man of experience and facts. On our boards they meet and help each other. The inventor or improver here finds that friendly assistance that he desires to bring him into communication with the consumer; and the farmer finds, in some degree, this Society to be a protection from being imposed upon by men who desire to sell useless inventions. We are ready to test, practically, every new tool offered to the farmer, as far as our time and means will allow; and our reputation as a Society will not permit us to make errors, where they can be avoided, in such tests.

To show the position that public opinion has assigned us in the work of improvement, I may be permitted to mention a case that came up last summer.

The Onondaga Salt Company desired to bring before the public what was claimed as an improved article of dairy and table salt,

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manufactured by a new process lately brought into use by this company.

The State owns the salt water, and derives a revenue from it, and, at a great cost, keeps a constant supervision over the manufacture of all salt made at its salines—having most rigorous regulations as to the manufacture—all to protect the people from having anything but good salt made at these salines. Not only quality is seen to by the State, but quantity is determined by public officers, and every package is officially marked as good in quality, and of full weight, before it is allowed to be sold by the manufacturer. A large body of office holders are required to inspect the six or seven millions of bushels manufactured each year in Onondaga county, and a great deal of public money is there distributed in the very laudable effort, on the part of the State, to protect the public at large from buying poor salt. Now it might well be asked, what more can be wanted than this State certificate of good quality, that costs the State many thousands of dollars every year, to assure the farmers, everywhere, that salt, so inspected, is what it is certified to be?

But there was something more wanted. The whole manufacturing interests had become consolidated, and placed in the hands of a very wise and judicious board of directors. They knew that there was something more than the State mark necessary for them to have to overcome the prejudices that had been created by persons interested against New York salt. The first thing this board of directors did was to employ two scientific men of proved skill. These men went to work, and under their direction, the new process was perfected, and they found that they could produce a purer article than was known in commerce. The next thing was to apply to your Executive Committee to test this salt, and give the result to the public. We readily undertook the task, sending our chemist, Prof. Porter, to Syracuse with instructions to select his own samples, and take his own methods for determining the quality, and to submit the result. This he did, making his report at the fair of Watertown, fully sustaining the position taken by the principal chemist of the manufacturers, Prof. Cook, that, nowhere else, was so pure salt made as the Syracuse "Factory Filled" dairy and table-salt. Now this company will sell this salt to our farmers on the strength of their own reputation, and the report of our chemist, Prof. Porter. We, as a Society, have in this case been most useful to

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the butter and cheese makers, and the farmers generally. And everywhere, I am assured, this salt is found to be all Professor Porter said it was, by the consumers. It is coming rapidly into general use, being sold extensively on the faith of our chemist's report, while, it is safe to say, the official brand of the State officers is not of the least value whatever. Our Society has won the public confidence not only in our State but wherever it is known. It has been the most active and useful instrumentality in calling public attention to the importance of increasing the products of the earth, and cheapening the processes of production. It has caused these topics to occupy a large space in the minds of our public men, and it has done much towards inducing talented and educated men to become interested in agricultural improvement who have acquired the necessary capital in other callings; and it has proved that talent, education and capital, are necessary to success. It has been instrumental in preventing some of our best men from leaving the State for newer, cheaper, and more fertile lands, by proving that our old lands may be so renovated and improved, by deep and thorough cultivation, and perhaps, draining, that, after all, it was better to stay within our own limits than to help settle new States.

We have all seen the constant tendency of the rural population to decrease in numbers, and the cities to increase. Certainly this is not desirable, and it is no small service to do the public to counteract this tendency of things.

An impression has been made on the public mind that the agricultural districts are growing poorer. This is due, in a great measure, to the census returns. And it is true that the well meant efforts of State and National governments, to learn something in regard to the products of our soil, have resulted in making a strong impression on the public mind that we, as a people, were growing poor with a rapidity so decided that, very soon, the farming interests would be ruined in the Empire State. Thinking men, who looked over these census returns, came to one or the other of two conclusions—either these returns were deceptive, or universal ruin was but a little way from us, for they knew that the farmers could not be ruined without all other classes of men sharing their fate. This Society took the best means at its command to test these census returns. Extensive inquiries were directed to well known men of different localities to find out whether the barns were no longer required to store crops, and,

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consequently, were suffered to go to ruin. The universal reply was, new and larger barns were required to store increasing crops. A member of our executive board took the trouble to go over his own county, and cause another set of statistics to be taken. He found increasing production. Mr. Cornell's report, on the Agricultural Statistics of Tompkins county, will be found in our Transactions for 1860. If all the members of our Legislature would read it carefully, it would lead to some radical change in the gathering of these statistics hereafter.

The farmers of the State of New York are not growing poor, and these faulty census returns do great injury in influencing the public mind here and in Europe. There are men among us who have no faith in those deductions from the census returns that go to show that our lands have lost their capacity to produce. I know such a man in the eastern part of this State, who has lately purchased three hundred acres of what was, by some, considered worn out land. He removed the stones from the surface, and put them into fences—for which they were well adapted—and then commenced thorough draining, laying his tile more than three feet deep, and his drains being only thirty feet apart. A large proportion of this farm was so wet that I formed the deliberate judgment, in walking over it, that, before improvement commenced, no man would be safe in agreeing to pay taxes for rent in its then condition. When the improvements now in progress are completed, this land will be found to be full of fertility, for it could never have been impoverished by any of the old ways of farming. It will become a warm soil, ready early in the spring for the plow, and not subject to early frosts in autumn.

Perhaps by the time all this fencing, draining, and the necessary buildings are completed, this farm will cost one hundred and fifty dollars an acre. I am confident that at that price it will be a good investment of money, merely considered as a money transaction; but it is, really, a great deal more. This man had a son to establish in the world; and after both father and son had gone over the great west to find the place for a new home for this young man, they returned and boldly took hold of what was considered worn out Westchester land, and having strong faith in their knowledge of what was necessary to be done for its improvement they set to work in earnest, and most advantageously for this State. Their success, which, from the results already obtained may be considered as sure, will wake up all the

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people around, who have thus far gone on following the routine that governed those previous to the Revolutionary war, to some new notions; and, ten years hence, whoever goes to see the change that will take place, will see that these men are public benefactors. They will make hundreds of tons of hay grow where none grew before. Is it necessary for me to say that this retired merchant, who has placed his son as I have described, is a well known member of our Society, who has participated largely in its management? Here, more than anywhere else, I venture to say, he has found the information on which he has based his policy. He will be the cause of many more men abandoning an intent of leaving our State, and concluding to bring into use some portion of our lands that, if not abandoned, are nearly useless, though near a market, and only requiring skill and capital to make them productive and profitable.

That farming, as a business, has greatly changed within the last twenty-one years is apparent. It is now known that its successful prosecution requires thought and much knowledge, as well as labor and capital. For the advance that has certainly been made, I claim that great credit is due this Society.

It seems to me that the assembling at our shows of not less than an average of forty thousand people annually, ninety-nine per cent of whom never before saw such a quantity of stock, of good quality, or such agricultural implements, must have resulted in causing the agricultural mind of this State to become active.

There is an important service rendered the people by this Society that we rarely receive any credit for. Occasionally new and important matters arise in the agricultural world as well as in the world of politics. A new disease appears, carrying off herds of cattle, or a new insect destroys the grain. Scientific and deliberate investigation must be had at once, and the whole truth spread before the public; or perhaps panic will take hold of the public mind, as it often has in such cases, and things most absurd and unreasonable be done to stop the plague. The disease known as Pleuro-pneumonia caused great alarm in a neighboring State but recently, and many healthy cattle were killed to check the progress of the plague. A year since this formidable disease appeared in this immediate vicinity. This Society assumed the investigation of the matter, and at once placed the facts before the public, and all undue panic was avoided.* The necessary

*See Transactions for 1860, p. 344, &c., for J. Horsburgh, and A. C. Copeman's articles.

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means to check the disease were used, and it seems to have passed away. So, again, the public mind was greatly excited this year by the appearance of new and destructive insects. This matter has been attended to, and, through our Doctor Fitch, information has been furnished that has kept the public mind instructed.

These cases show how necessary some central body is to receive information from every source, to digest it all, and give the results at once to the public. This is performing the duties of a Bureau of Agriculture.

Here I stop the enumeration of the points that might be made showing the great importance to the public of the continued existence and prosperity of this Society; not that I have exhausted the subject, but because I have used all the time to which I am entitled, and because I think I have said enough to justify me in asserting that the State cannot afford to let the Society become less active and efficient for want of aid from the government.

The State gives our Society seven hundred dollars a year, and pays for printing the volume of Transactions each year, and pays Doctor Fitch for his labors. The State built this Hall, and gives us the use of these rooms. This is the extent of State aid to us. We look to the receipts of our annual fairs for the money necessary to pay all our premiums, and to pay a permanent secretary, and a clerk to conduct our affairs. Our postage, stationery and printing would about be paid for by the State's seven hundred dollars. The expenses of keeping up a permanent office, and sustaining this Bureau of Agriculture, is about three thousand dollars a year. This three thousand dollars has, thus far, been paid by the visitors to our fairs. To me this appears unjust. I think all the money received at our shows, from persons who pay for going on our grounds, should be applied to premiums, and, by so doing, so increase the list that our shows would attract more exhibitors, and, by so much, be rendered the more valuable. I think the State, at large, should support this Bureau of Agriculture. Now, our treasury being entirely dependent on the receipts of the fair, we are subject to all the uncertainties of weather, public health, or any other cause that may disturb the public mind. If we hold our fairs off the central line of railroad we cannot expect large receipts. The last two years our fairs have been off the central line, and, with the bad weather at

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Elmira, and the depressing influence of the war to injure us at Watertown, we now find our treasury empty.

It has never been the policy of this Society to accumulate money beyond its reasonably expected wants, but it cannot go into debt.

Having shown that, so far as usefulness is concerned, this Society is no experiment, I think it is time for the State to be formally called upon to give us the aid necessary to sustain this central office. This would enable us to go on in the future as we have in the past—improving and increasing the resources of the State. It may be suggested that, as in the past so we can live in the future. This is a mistake. We have grown so large that towns are now unwilling to assume the whole expense of the fairs, and we cannot longer look to the fairs to put three thousand dollars annually into the treasury to be expended, mostly, here in Albany, and pay all their own expenses.

I have finished the task I undertook, according to my ability, in presenting the reasons why the State should be asked to assume the expense necessary to keep in active operation the same influences that have caused this Society to be of incalculable benefit to the State, and that have reflected honor upon it wherever civilization exists.

It is a pleasure to me to close my labors, as your President, by giving you my thanks for the honor you did me in placing me in this office. To my associates of the Executive Committee I desire to express my obligations for their uniform kindness and valuable assistance. To the people of the village of Watertown I feel under personal obligations. It was, by many persons, thought to be a very bold act for these people to assume the risk of holding a fair this year—filled with war's dread alarms; but they not only undertook to provide the necessary conveniences for the fair, but they did their work so well that general satisfaction was expressed with the whole arrangements. I am happy to be able to say that I am assured that the people of Watertown feel themselves compensated fully for the trouble and expense they assumed, and to add that our treasury was the gainer, rather than the loser, by holding a fair even in this year.

Nothing now remains for me but to introduce my successor, upon whom the duties I have attempted to perform the past year now devolve—the Hon. Mr. Cornell.

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AGRICULTURAL DISCUSSIONS DURING THE STATE FAIR.

We are enabled to give the substance of the discussions at the State Fair, as reported in the Genesee Farmer, Country Gentleman and other papers. The meetings were well attended, and the discussions elicited many valuable suggestions. All seemed deeply interested in the discussions, and many of our farmers were called out, and their experience detailed in a manner that cannot be otherwise than useful—showing, as the discussion and resolution did, on the last evening, that *farming, rightly conducted, in this State is a paying business.*

Evening Discussions.

TUESDAY EVENING.

[From Genesee Farmer.] SUBJECT: "Barn-yard manure, how saved, and how applied. Shall it be kept under sheds? Shall it be piled? Shall it be applied raw or rotten? Shall it be put on the surface or plowed in? And is a different method of application required for different crops and for pasture and meadow lands?"

The Hon. A. B. Conger, Rockland county, Ex-President of the Society, presided.

Geo. Geddes, of Onondaga, President of the Society, who occupies a farm where grain is principally grown, and where straw is very abundant, gave the following directions, as the result of his observations on this subject: 1st. The barn-yard should be made so that the manure would not run out of it. 2d. Straw enough to absorb all the liquid. Then in spring, pile up the manure in heaps, with square sides and flat tops. If very strawy, the heaps should be high, and the top somewhat hollow, to hold the water, or they will not rot. If this is done in the spring, by July the piles will be in a condition to cut with a spade. The outsides will not decay, and they should be pared off and thrown on top. It is folly to put strawy manure under a

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shed. If it is three-fourths cow dung, it *might* be advisable to put it under sheds. Sheep manure under sheds will fire-fang. Pile it up early, and it will not fire-fang. The dairymen want it under sheds, but the grain-growers do not. In regard to its application: Put it either on grass or wheat. Do not put it on corn directly. It produces weeds. Rot it thoroughly, and draw it out on the wheat fallows, and drag it in. Do not plow it in. Better on top than plowed in. Believes in top-dressing clover or grass. Get a good crop of clover, and you have laid the foundation for good subsequent crops.

Hon. Moses Eames, of Jefferson county, an extensive dairyman, spoke of the benefit he had derived from the use of earth in his barn-yard, as an absorbent of liquid manure. A top-dressing of five loads per acre, of this saturated earth, applied in the fall, produced three tons of hay per acre.

B. H. Andrews, of Connecticut, had not straw enough for litter. Wheels the manure into covered sheds, and applies it in the spring to corn. Has a drain from his yard, and irrigates and gets excellent crops of grass.

Mr. Parker, of Jefferson county, had never summered ten loads of manure. In December, January, February, and the first half of March, drew out the manure while fresh, and piled it up into a large heap. In April spread the manure and sowed wheat. Where the heap was, the wheat was too rank, and blasted. This satisfied him that manure should not be piled. [We suppose Mr. P. is in favor of spreading it on the surface while green, in the winter, as he remarked that his land is not hilly, and there was no danger of the manure being washed away.] When he had not straw enough to litter, he goes to the woods and gathers leaves. Puts muck, leaves, straw and horse manure into the pig pens, and the pigs make it into a prime article for the garden and orchard and the corn-field.

T. S. Faxton, of Utica, alluded to the time when the farmers on the Mohawk used to make "bees" to clean out their premises, drawing the manure on to the ice, so that when the river broke up it might be washed away, and thus save them any further trouble! Now, the farmers wisely took great pains to keep up the fertility of the soil.

Sol. Walrath, of St. Lawrence county, said his biggest crop was manure. Does not believe in having foul seeds in manure. Cuts the hay and weeds before the weeds go to seed. Saves

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everything; draws muck, grass, weeds and refuse of all kinds into the barn-yard to rot. Applies his manure not to corn but to grass. Corn very clean, grass free from weeds, and both of better quality.

WEDNESDAY EVENING.

The subject for discussion was: "Dairy farms. Is it advisable to cultivate dairy farms so as to secure fresh pastures, or are permanent pastures most profitable; and how can noxious weeds be excluded from pasture lands most advantageously?"

Mr. Woolworth, of Lewis county, thought that on some of the gravelly soils of the county the old pastures were best; but on limestone soil, like that in his section, breaking up the land once in eight years or so was a great improvement. Cows liked the new seeded grass the best. White daisies, yellow dock and moss are very troublesome on the old pastures, and even on the new it is difficult to keep them down.

Mr. Brown, of Lewis county, had a sixty acre pasture run over with briars. It kept about ten cows. He cut them, and subdued it by keeping sheep. The June grass came in and spread over it like a mat. It now keeps twenty-five to thirty cows. Thinks this better than if it had been broken up. Had sowed a little plaster on it. It is limestone soil.

Mr. Miller, of Lewis, agreed with Mr. Woolworth. Cows and horses will resort to the newly seeded land and leave the original pastures.

Mr. Woolworth: "It is important to manure as well as plow."

Mr. Lyon, of Lewis, said gravelly land required to be plowed oftener than the limestone lands. Cattle will leave timothy and clover, and go to the June grass brought in on the native pastures.

S. Walrath, of St. Lawrence county: "The great point is to get land clean before seeding."

President Geddes remarked that Mr. Walrath's farm was the cleanest and neatest he had ever seen. Not a square foot of weeds on the whole farm, of fifty acres. If Mr. W. would come to Onondaga, they would send him to Congress.

Solon Robinson: "That would be but a poor compensation."

Mr. Walrath: Land quite natural to white clover. Top-dressed his grass lands; cows did not like it for a few weeks, but after mowing prefer it to all others. Considered June grass a weed,

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and took as much pains to destroy it as any other weed. Cows prefer the new seeded land. Injurious to the new grass to feed it the first year.

E. L. Halsey, of Cayuga, said permanent pastures gave a better quality of butter. Clover will carry more stock.

Mr. Stanley, of Lewis county, has pastures sixteen years old, that produce better than lands seeded three years ago. Cows prefer the old pastures in the spring. The grass starts quicker.

Mr. Lyon, of Lewis county, had two pastures—one which had been down three years, and one seven years. The former afforded double the feed of the latter.

Mr. Ellison, of Herkimer, spoke highly of plaster for grass lands. Cattle prefer the plastered grass. Frequent plowing is not beneficial. Plaster in the spring, and manure in the fall.

Solon Robinson recommended salt as a top-dressing for grass lands. It had proved very beneficial on his farm in Westchester county. It sweetens the grass. Had sowed as much as ten bushels per acre.

THURSDAY (THIRD) EVENING.

THE AGRICULTURE OF NEW YORK.

[From Country Gentleman.] The subject was: "The agriculture of New York: does it pay a fair compensation for the capital and labor employed?"

E. Parker, of Watertown, said he was a practical farmer, but had kept no book account to show exactly his losses and profits, but thinks such an account would have run him in debt; he had commenced with forty-four dollars twenty years ago, and had "hammered, and pecked, and drilled along until the present time," and had succeeded in making a small living, and his farm would now sell for some four thousand dollars. He ran in debt for his farm and for his buildings, and found it a pretty hard, up-hill business; has paid from three to five hundred dollars yearly for hired help, yet with "a hard pull and dig," had been enabled to pay for his farm. On the whole, he thought farming a pretty hard business.

Several instances of very successful farming having been mentioned, A. L. Fish, of Herkimer county, remarked that in isolated instances farming had been both successful and unsuccessful, but he pointed to the whole State of New York, which had arisen to a great height of wealth—was this prosperity owing to the labors

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of the mechanic, or to those of the merchant? No, they were chiefly to be attributed to farming—the cultivation of the soil had produced this wealth. Solon Robinson said the main question is—is farming as good or a better business for a young man to enter, than trade or other similar occupation? The city merchant ascertains from the accurate accounts which he keeps, showing precisely the amount of his gain, that he makes ten or twenty or even fifty thousand dollars a year; yet after a while he becomes bankrupt. One chief reason of this result is, because he did not estimate the expenses of his family. With the business of the farmer, no risk of this kind is incurred; and although he does not live *so fast*, he lives equally well and honorably. He would like to know what proportion of the merchants in New York would be worth fifty thousand dollars at the end of their lives, compared as a mass, to the whole number of persons successfully engaged in farming?

—— Ellison, of Herkimer county, suggested whether, if the merchants of the city had pursued as economical a course of living as the farmers, failure would not in some instances have been avoided. He thinks that farming is a paying business, and that the mechanic and the merchant are necessary; that the man who digs in the earth has rather the advantage of the mechanic. Instances, he said, had been given, of great success in farming in grain districts; he had known many instances also in the grazing regions, where men had become rich in a few years. One of these had discovered that it was just as cheap to keep a good cow as a poor one, and had made seven hundred pounds of cheese annually from each animal; others had made $60 per cow in each year. They used plaster and top-dressings of manure on their lands. In the dairy town of Fairfield, in Herkimer county, large profits had been reached, although there is but little plowed land. The manure of the animals is applied as a top-dressing to the meadows, and a high degree of fertility kept up.

Ezra Cornell, of Ithaca, in order to avoid the objection made to giving isolated cases, presented a very interesting statement of the agricultural statistics of Tompkins county, which he had with great labor collected through the school districts and from other sources. He had ascertained that there were 204,000 acres of improved land, and 63,000 unimproved;* these were valued

*We give the round numbers only; the statement which he presented furnished minuter details.

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at eleven million dollars. The capital used for the cultivation of this land, including cattle, horses, sheep, swine, and other animals, and $379,000 worth of tools, &c., was estimated at two millions; making the whole amount of capital invested in farming in that county, thirteen millions. A carefully made statement was then given of the annual products, the details of which would occupy too much space in this report, the numerous items of which were obtained through a competent person selected in each school district. This estimate of all the farm products of the county for one year amounted to $2,713,000. The usual allowance made for the *labor* of the farm is one-third; but allowing for errors, taxes, and seed, and calling the whole *one-half*, there would remain for the net proceeds $1,356,000, which would be a little over *ten per cent.* This does not include the many farm improvements in buildings, dwellings, barns, fences, in draining (of which one hundred and fifty miles had been made in a single town), highways, &c. Mr. C. remarked that farmers generally were improving their condition every year, rode in better carriages, had increased home comforts, besides which they often sent their surplus money west to buy new lands for their sons; and it had been also discovered by examining the county records, that most of the bonds and mortgages were held by farmers. He said, in conclusion, that he had not been able to discover any facts from which he would advise farmers to quit their business for other pursuits.

S. Walrath, of Canton, St. Lawrence county, thought there was a chance for mistakes in such estimates, and that farmers generally give one-quarter more than what they really raise—he recommended that accurate measurements should be made, and the whole county thus estimated—and if this were done, it would still show farming generally to be the most profitable of any business. E. Cornell replied, that by carefully selecting proper men, for example, such as the gentleman who had just spoken, very accurate results might be secured, and far more reliable than through the census.

—— Hawley, of Syracuse, said that many committed the mistake of supposing that farms should pay a full interest besides all that was consumed in the family. A clerk who receives $600 can perhaps scarcely support his family, as he has to purchase all his supplies—the farmer has these already at hand. He had traveled lately through all the dairy districts in the western part

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of this State, and had observed a general prosperity among the residents; they lived in good houses, set good tables, rode in comfortable carriages, and educated their children at academies; in the city, these luxuries were confined to a comparatively small number, and many of these subsequently fail. He had known poor boys run in debt for fifty acre farms, now owning five, six, and in one instance an eight hundred acre farm, all paid for at a high price, from the land itself. He advised farmers to educate their sons as farmers.

James Vick, of Rochester, dissented from much that had been said; in allusion to the successful instances that had been mentioned, he could cite a dozen others where farmers had sunk all they had; he thought that of many who had become rich, they had succeeded through speculation, that is, by the rise in the value of their lands, which were bought at low prices, and afterwards became valuable. He thought farmers generally were quite ignorant, and knew but little of scientific agriculture.

—— Hawley, of Syracuse, said that a farmer who undertakes to speculate, generally fails, and in almost every instance where farmers had become bankrupt, it was by not diligently attending to their business, but by neglecting it for other pursuits, or by extravagance and idleness.

Solon Robinson asked: What are riches? The answer must be, all the comforts of living. Agriculture had given these comforts and improvements; it had made the wealth of the whole country. He cited the growth of our inland cities—looked over the great west, which, if it had not blossomed as the rose, had raised some little grain, and had occasionally sent a bullock down to New York. He spoke of the enormous increase in the value of these wide regions, and asked who has created it all, if not the farmer? And is not farming then a paying business?

—— Huntington, of Black River, said he had hunted squirrels on the ground where this large village of Watertown now stands, and when the land it occupies was thirteen shillings an acre—that farming had built it up; and he thought, from his own limited experience on fifty-six acres (being chiefly a mechanic), that the products of farming might be doubled.

—— Johnson, of Buffalo, said he was a young man who had been unsuccessful in farming. He had no farm of his own, and wanted to know how to get one. He had bought a hundred acres by running in debt; and being in poor health, and able only to

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superintend the labor of others, had been scarcely able to pay the interest. After two years he became discouraged, and sold his land.

A. B. Conger, of Rockland county (the chairman of the meeting, and who had ably superintended all these discussions of the State Society), remarked, as a summary of the whole subject, that although many individuals of energy and judgment could run in debt for land and pay for it in the products, yet that, generally speaking, farming, to prove successful, required a certain amount of capital to carry it on—if this were insufficient, one must expect all the penalties and difficulties resulting from a want of capital in any other case. A most important consideration in any business, is its permanence and security—features which farming eminently possesses. A person residing in the city of Boston had kept, during a long life, a list of all such as had pursued trades; and he had found that out of every hundred so engaged, ninety-seven had failed; and of the remaining three per cent, a small portion only continued to hold their means to the end of life.

There are also certain failures in bad seasons in farming, but we must balance the case and take the average. The owners of real estate in the city of New York, after paying all the taxes, do not generally receive more than three and a half per cent; and if five per cent is obtained, as an average, from farming (whether all or a part of this be expended in improving and increasing the value of the land), he proposed, as a question for the votes of the members present, that this be regarded as paying a fair compensation. He alluded to the estimate presented by Ezra Cornell, where the products of the $13,000,000 invested were over $2,700,000, and said that even admitting $1,700,000 were consumed for labor, taxes, and all contingencies and errors, it would still leave $1,000,000 as the interest on $13,000,000, or seven per cent. He stated that in England a capital of $10,000 was required to stock, manure and carry on a farm of one hundred and fifty acres; and that there, where there is capital enough, farming proves very profitable. It is the improved farming that has brought the rental up from one shilling to three pounds ($15) per acre. Farmers here do not use capital enough. He made the following proposition, which was adopted by the meeting without a dissenting voice, viz: That the agriculture of the State of New York, when pursued in accordance with the

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rules which govern business operations, and with the light which science and practice throws upon it, pays a fair compensation for the capital invested.

Ezra Cornell submitted a resolution, which was adopted, requiring the Executive Committee to furnish blanks to enable all the counties to procure statistics similar to those that had been presented this evening.

The meeting then adjourned *sine die.*

We give the accompanying remarks from Solon Robinson, who was with us in 1841, and has stood by us ever since; and we are glad indeed to be assured that something has been learned at every succeeding exhibition:

THE STATE FAIR.

BY SOLON ROBINSON.

WATERTOWN, *Tuesday, Sept.* 17, 1861.

I attended the first fair of the Society, held at Syracuse in 1841. Every year since I have been able to learn something new—something beneficial to me as a farmer, or something that I could communicate to others to their advantage. I shall try to profit equally by what I see here. I have seen one thing to-day which I wish every farmer, and every man who ever drives oxen, or handles cattle in any way, could see as I have seen. It would teach him the great benefits of the law of kindness. We have all heard of Rarey among horses, and have almost loved the man in our admiration of his process of training. I have just seen a Rarey among horned cattle. Here is a boy, perhaps sixteen years old, training and handling six steers, not yet two years old, with all the ease that an experienced Yankee driver handles a single pair while in the yoke; and he has no yoke, nor rope, nor does he speak a word scarcely above a loud whisper, and only occasionally strikes a blow that would raise a blister upon the skin of a child. All his acts are based upon the laws of kindness, with a firm determination that all his orders must be obeyed. Now he brings up a single pair as though yoked together; then two yoke, then three; then he mismatches all of them, as though he were about to yoke the off ox on the near side. Then he changes places, and puts odd ones together; then he unyokes, if I may use the term when he does not use a yoke, all of them, and brings them up in line

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like a platoon of soldiers, and with greater precision than any "awkward squad." Then he trains them round by twos and threes, or drops out a single one, and orders him to a new place by a motion of his small whip, or, as it seemed to me, often by a mere effort of his will that he desired a change of position. For an hour that I stood watching, there was another pair of older steers standing just outside the circle of his operations, patiently watching their turn, until some one asked: "Can you handle eight as well as six?" "I could," he modestly replied, "if my whip was a little longer. I can't reach the outside one, when in line, with this short whip, but I will try." And so he did; and notwithstanding the short whip, all were managed with the utmost ease, and all who saw were taught a lesson, which none seemed to tire of learning.

The stock on exhibition is not remarkable this year in all its branches. There are some good animals in each class, such as will tempt owners of scrubs to make improvement. The Morgan horses are not in the ascendant as much as I expected to see, and not as much as at the first State Fair held here, in this Morgan horse region; and I am assured that this breed is not as popular as it was a few years ago; that a good many people now fully endorse the doctrine of the *Tribune*, that some other blood of a larger strain of horses must be infused into the Morgan stock, to make the most valuable farm horses. This is evidenced here by the admiration bestowed upon several fine stallions of other breeds, in preference to those of the Morgan stock.

In horned cattle, I find Durhams, Devons, and Ayrshires, well represented with specimen animals, but not in large numbers. There are some representatives of the pure Holland stock, curiously marked by being colored black, with white bands around their middle, imported by A. Holbert, of Goshen, Orange county, where their breed and cross from it with native stock have proved most valuable milkers. One of the noted characteristics of this breed is their great docility, and richness of milk, being, like the Alderney, better adapted to family use, or butter dairies, than for furnishing milk for sale.

The most marked feature in the bovine part of this show is the large number and high character of the grade cattle, showing what vast benefit one or two such men as Mr. Hungerford, or Mr. Brodie, may confer upon the county of their residence. The marks of the improved stock which they introduced here are

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now developed, and prove that it has added much wealth to the country. I hope that the sight of the stock now exhibited by Mr. Hungerford will induce a great many who see it to determine to improve their own. This is the advantage of these exhibitions.

Tho greatest improvement in the live-stock part of the show is the swine. I have never seen so large a number of beautiful—I use the word thoughtfully—hogs together as I have seen to-day. The particular breed is a cross of Suffolk and Yorkshire, which appears peculiarly well adapted to dairy farming, and comes to a size of two hundred pounds live weight at six months old, with scarcely any other feed than milk. The color of the hair—what there is to be seen—is whitish, but the prominent color of many of them is pinkish, or "flesh color," and the hair is in very small quantity, and as for bristles, if we were dependent upon this breed, we should have to learn to do without sowed shoes, or furnish the shoemakers a metallic substitute for pointing their waxed-ends. This peculiar breed of hogs has become almost universal among the best farmers of this county, and has added largely to the profits of pig feeding. While looking at these pigs, which are always in a fit condition for the butcher, we learned the whole art of profitable pig feeding and pork making from one of the exhibitors. It is so concise that I can afford to give my readers the whole secret in detail:

"Be sure to get a good breed, and feed well."

That is all; there is no more. Learn those words, and the whole is learned. You have mastered the art of pork making, and making it profitably.

Of sheep, the exhibition is not large; but it contains representatives of each class—Long-wool, Fine-wool, Middle-wool; in monstrous animals of Leicester or kindred breeds; in small Silesians, and Spanish Merinos, or larger French Merinos; and in Southdowns, the perfection of sheep symmetry. Also, in grades or crosses of each of these upon the native stock of the country. There are some remarkably fine specimens of Southdowns from the farm of Samuel Thorne, in Dutchess county, and also from the farm of Mr. Alexander, in Kentucky.

Of the general arrangements of the show grounds, justice to the officers of this Society, and the local committee of Watertown, requires that I should say that they never have been equalled.

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The plat occupied is a large plain, with a good sod, on a sandy soil, belonging to the county society, which has several permanent buildings, one a very large one.

With the county show grounds, the race-course, where there is a mile track, has been connected, and into this carriages are admitted to witness all the exhibitions of horses, and the show of all the prize animals.

All the stalls, pens, and other structures, erected for the occasion, have been designed for convenience and comfort, and improved upon the experience of former years. There is one thing that has not been improved, though it much needed it; and that is, the arrangements for feeding the officers, committees, and guests of the Society. If "soldiers' fare" is no better, I do not wonder that they grumble.

To-night the first of the series of Farmers' Club meetings will be held, and will be addressed by Dr. Fitch, upon the march of the *Army Worm*. These meetings have become a prominent feature of the annual exhibitions, and the talks of practical farmers are listened to with great attention. I shall, therefore, endeavor to give brief reports of the substance of these conversations for the benefit of those who can read but cannot attend.

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WINTER MEETING, 1862.

REPORT OF COMMITTEE ON JASON C. OSGOOD'S FARM, SULLIVAN, MADISON COUNTY —NELSON MOYER, FARMER.

This farm lies about two miles from the village of Chittenango, at a considerable elevation above the canal, contains two hundred acres, 30 of which is timbered land. It came into the possession of the present owner about eight years since, in a very exhausted and dilapidated condition, the crops being merely nominal. The soil is mostly on the Marcellus shale formation—a small portion on limestone. Trees: birch, oak, maple, hickory, basswood, scattering hemlock, &c. The first move on taking possession of the farm was to plow deep—average, ten inches. The former occupant was contented with four inches, and his crops were as shallow as his plowing. On one field on which a crop of oats, amounting to 400 bushels under the old system, yielded under the new, for the first crop, 1,500 bushels; and so on in like proportion. No provision had formerly been made for manure. This was attended to; and now 500 loads, from stock and litter, are made on the farm, and used successfully, the meadows now yielding two tons per acre, instead of half a ton as formerly.

About 30 acres are under the plow, 60 acres in pasture, 50 acres of meadow. The expense of working this farm is about $700.

Lime is found on the farm, and is used profitably on the shale formation, at the rate of from 60 to 100 bushels per acre, with an interval of two or three years; 60 bushels prove the most beneficial as well as economical. On the lime formation the application is not specially beneficial, and is used only on knolls, where it is beneficial. A dairy of about 30 cows (five heifers) is well managed. Butter made until about 15th of May; cheese until 15th October, and then fall butter. Average weight of cheese 75 lbs., made in 19-inch hoop. The cows aid in supplying the manure for the farm as well as the products of the dairy. The dairy house, built of stone, is very complete, having every necessary convenience to lessen labor and secure good cheese and

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butter, which commands the highest market prices and a ready sale at the dairy. The dairy is more expensive, perhaps, than is required; but as the materials were on the farm, the proprietor deemed it best to avail himself of the materials on his own land. It, however, is, in its arrangements, worthy the attention of dairymen not provided with a convenient dairy house.

In 1860, besides supplying the family, 1,800 lbs. spring-made butter was sold, and cheese to October, 6,700 lbs. This year the drouth has lessened the yield somewhat, though the amount is, butter sold, 850 lbs.; cheese, 11,188 lbs. Soiling food is being prepared on the farm, and is found very useful in keeping up the milk of the cows.

The grass and hay, when the farm was entered upon, would not supply food for the stock, and hay was regularly purchased in the spring. Carrots grown in 1860, yielded at the rate of 1,260 bushels per acre; and fine fields were growing when we visited the farm, probably yielding as many bushels. White clover comes in naturally on the limestone formation, and is valuable for dairy pasture.

The farm now is well fenced with stone walls and rail fence. The wall fence is five feet high, costs about $1.75 per rod. The boulders and rocks, which were on the farm when it came into Mr. Osgood's possession, have mostly been removed. The water from springs is now distributed to all the lots by composition gravel pipes, which operate well. The daisy and thistle, the most troublesome pests, are almost eradicated.

In eight years, this farm, from a worn-out and exhausted state, with dilapidated buildings, apology for fences, has been, by good management, brought into capital condition, paying a fair return for the investment. A neat, comfortable and attractive dwelling, good barns, stables for stock, and other buildings for tools, implements, &c., of the most convenient character, have been erected; and preparations to secure the manure under shelter, have not been forgotten; and water for the stock is at hand, so that the animals are not exposed to the long winter march to the frozen streams, too often witnessed even at this day. These improvements have been expensive; but it now produces a larger annual amount per acre on the investments, than under the old system at any former period.

The condition of this farm—its neat and substantial fences, its fields well arranged and in good order—certainly does great

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credit to the owner and his tenant, and is, in our opinion, worthy of the commendation of the Society. This farm, in its improved condition, shows that money judiciously invested in farming, is the true way for the farmer to prosper; and he has, in addition, the gratifying assurance that he is doing good to others by his example, and contributing to the advancement of the great agricultural interest of our State and country.

Although there is no competitor for the premium on farms this year, the committee deem the improvements of so valuable a character, as to entitle Mr. Osgood, and Mr. Moyer, the farmer who has been with him from the beginning of his work, to the special consideration of the Society; and they recommend that the silver medal of the Society be awarded to Mr. Osgood, and a diploma to Mr. Moyer

B. N. HUNTINGTON,
B. P. JOHNSON,
Committee.

Report of J. C. Osgood's farm management and work on his farm, in the town of Sullivan, Madison county—Nelson Moyer, manager of the farm.

The farm contains 200 acres of land, 30 acres of which is wood land, and the balance, 170, improved.

The soil is black loam, mixed with slate; subsoil clay, mixed with gravel; there is sufficient limestone for fencing purposes.

My usual depth, of late, for plowing is ten inches, or deeper if I can get down. In 1853 a field of 18 acres was sowed to barley, and was plowed from three to six inches deep; the crop was light. In 1854 I commenced to manage the farm, and plowed this 18 acres barley stubble, and sowed to oats; gave it as deep a plowing as my neighbors did, from three to six inches deep; harvested and thrashed 450 bushels, the crop from 18 acres. In the fall of 1854 I turned the stubble under ten inches; in the spring cross-plowed it and sowed it to oats; when the oats came up they looked yellow and sickly, up to the first of June, then the color changed to green, and they grew finely and were very heavy. I harvested and thrashed 1,100 bushels. Since then I have adopted the plan of deep plowing, and with like results. I use the Trojan plow, which will cut and turn ten inches deep; have not used the subsoil plow.

I have drained some three or four acres of wet land, the soil a

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black muck with clay bottom; the first crop did not do well, the second done better, the third lodged, the fourth crop (this year) I think far the best—the straw did not grow too large, and stood straight; the four crops were oats.

The trees indigenous to the soil are hickory, butternut, hard maple, basswood, elm, oak, beech, white ash, black cherry, hemlock and hard bark poplar.

The amount of manure made annually is about 500 loads, from stock and yards. The stable manure I draw on the meadow land during the winter, and spread it as well as I can. In the spring I take a light drag and go over it to haul it to pieces. The barn-yard manure I usually plow under; sometimes I draw in piles through the summer and put it on the meadows in the fall, or as soon as the meadows are harvested. I think the fall the best time to top-dress; prefer to use the manure from the stables in a green state, as I have no cellar to store it in; I think it better to leach on the land than in the barn-yard, for when drawn out we get its full strength, which we much need. Use on meadow lands about thirty loads to the acre; for wheat, prefer to use the manure in a green state; spread it on after the wheat is sown, or drag it in with the wheat—in this way it has proved more valuable than rotten manure. The coarse manure on top helps winter it, and the dry cold wind and hot sun in the spring do not affect it. The fine rotten manure on our plowed lands does not produce as well as that in a green state, nor does it last as long. If we were in want of manure, more than collected at the barns from stock, I think it would pay to cut all the weeds about the fences and in the roads, and pile them and let them decompose; we could make a great quantity, but at what expense I am not prepared to say.

There is a limekiln on the farm, in which can be burned from 800 to 1,000 bushels at a burning, at an expense of $40 per kiln; it makes a cheap manure. Lime applied to grain does not have as beneficial an effect as on grass; the heaviest crops of grass we have are from limed lands; the method of using it is to draw it in small piles in the fields, so it can be thrown together from each pile, and thus cover the ground evenly and then plow it in; use from 60 to 100 bushels per acre. We usually burn one kiln a year, all of which is used on the farm.

Plaster is used on pasture and meadow lands. My experience in the use of plaster has been, that one ton of plaster will make

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two tons of hay if sowed early in the spring; it costs $2 a ton at the mill, and the expense of drawing it four miles; it is a cheap manure.

Guano, salt, poudrette and superphosphate of lime have not been used.

This year I till 33 acres—13 acres to oats, 12 to corn, 3 to spring wheat, one acre corn sowed for fodder, one acre carrots and beets, and three acres potatoes.

My method for fitting my land for seed is to plow it well and to plow the furrows together, and if not smooth enough I run the drag over it once the way it was plowed before sowing. Oats I sow broadcast, 2½ bushels to the acre, and drag them in well both ways; this crop I put in as early as the land will work; harvest them before too ripe, while the points are a little green; I cut them with a reaper, and bind as soon as cut; stook with about eight sheaves in each, capped with the ninth; this is the cheapest and safest way I can harvest them; when properly capped they can remain out some time in rainy weather without spoiling; the average yield is about 70 bushels per acre.

Corn crop, say greensward; I plow in the fall—plow from six to eight inches deep; in the spring I put on the cultivator and cultivate the way it was plowed, then cross it with the cultivator, then go over once with a drag to smooth it; it will then be in good condition for planting. Mark the ground both ways 3½ feet apart, and plant on the cross; the quantity of seed used is about eight quarts per acre; throw in some for the crows and worms, and thin out when hilled, not leaving more than four or five stalks in a hill. Cut up when ripe and set it in small stooks or bunches; the best and quickest way I find to husk it is to pull down the stouts and snap off the ears and draw to barn; the average yield for eight years has been 50 bushels, and this year it will meet the average.

There is a bug that works on corn almost as soon as up, and eats off the leaves; it is a black bug about the size of a house fly; sits close to the ground, on the stalk, has a hard shell and a sharp hooking bill; as soon as I discover them at work I put on lime and ashes, mixed equal parts; a small handful applied to three hills is a sure means of their destruction. This year a new insect or louse made its appearance; when I first saw them they were on the spring wheat, then on the oats; they set in

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clusters on the stem and chaff; what damage they have done I cannot as yet tell.

Spring wheat I sow as early as I can work the land; generally the first crop put in; sow broadcast, two bushels per acre.

For carrots and beets I plow as deep as I can, and have the land well pulverized; make the rows 18 inches apart, use a seed drill, sow in May, as early as possible, thin out when weeded, cut the tops off with a hoe, and then plow them out. Last year I raised 1,200 bushels carrots on the one acre now sowed to carrots and beets.

We have one acre sowed to corn; five bushels seed used to the acre, sowed broadcast, dragged in one way; think it will yield five tons. I cradle and bind it in small bundles, put six bundles in a shock, tie it well at top and let it stand until dry.

Potato crop.—I plant potatoes on my dryest, loosest soil, where the soil will not stick to the potato; do not use manure for this crop, as I think it helps to rot them. I do not think it is an insect that causes the rot; I believe the cause to be in the atmosphere; my reason for thus concluding is, that the rust is on the whole field at once; the yield with us is from 150 to 300 bushels, depending upon the extent of the rot.

When I prepare a field for pasture, I sow six quarts of timothy seed and six quarts small clover seed per acre; for meadow, the same amount of seed, but use the large clover, as it matures more evenly with timothy. If I seed after wheat or rye, I put the timothy in in the fall and clover in the spring, about the first of April, if there is not too much snow. When seeding after a spring crop, I drag in the grain, and while the soil is mellow I sow the seed and then roll. I believe clover has more milk, cheese and butter producing qualities than timothy, and will keep more stock and fatten them quicker.

I mow 50 acres, and harvest from this from 100 to 125 tons of hay. I cut the grass when quite green, when the clover is partly headed out, let it properly wilt, then put in cocks and let it remain thus until fit for the barn; when there is no clover, I cut the timothy as soon as it sheds the blossom; I rake it up before it is half dry, and cock it; if the weather is good next day, I turn it out in the morning, let it lay three hours, then draw to barn; do not like to have hay too dry before it goes to the barn. Our meadow lands are all suitable for the plow; there is a small brook that I dam in the fall and spring, and flood 15 or 20 acres

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of meadow; where the water covers the grass, as far as the flood reaches, it cuts from three to four tons per acre.

Stock.—I keep thirty cows, three two year old heifers, nine yearlings, one bull, ten spring calves, and five horses. The stock is a mixture of breeds; don't keep any full-blooded stock; think the native cows, crossed with Durham and Devon blood, make the best milkers; believe it to be an economy for every farmer to have warm stables for his cattle, as cattle fed on straw, with warm stables, will be in better condition than they can be, kept on hay out of doors. All the stock is stabled in one barn, a basement stable, accommodating 29 head—15 one side and 14 the opposite side of stable; there is a feed floor of 12 feet; their food is scattered before them; stalls have no mangers; consider it an advantage to dispense with them, as where they have mangers they have to be emptied twice a week of the refuse; whereas, in the stables where there are no mangers, one man can carry out the collections of a whole winter at once, showing where it is thrown before them loosely it is all used. I water the cattle twice a day when they are kept in, cold, stormy weather; when pleasant, I let them in the yard until feed time; I feed three times a day, and do not confine them to one kind of food; I give them cornstalks, straw, hay, once of each, each day.

Up to this date we have made 116 cheese (Aug. 30), averaging 75 lbs., and 1,070 lbs. butter; expect to make 60 more cheese, about 60 lbs. each. The amount of cheese this year will be about six tons, and of butter nearly 2,000 lbs.

I keep eight old hogs and eight spring pigs; they are a mixture of Leicestershire and Suffolk breeds; they are fed milk and whey during summer, and finish with corn; at the age of 1½ years kill them, when they will weigh from 350 to 400 lbs. dressed.

There is an orchard on the farm of 40 trees bearing fruit, a young orchard of 50 trees, all grafted, mostly with winter varieties—Spitzenburgs, Greenings, Swaar, Russet, and other varieties.

Barns.—There are five barns on the farm; one 40 by 50 feet, with basement under the whole; another 36 by 40, with basement; a hay barn between the two stables attached, each 22 by 60; corn barn 22 by 40 feet, with basement for hog pen. All these basements are stone walls; the walls are built 9½ feet high, floors 18 inches from ground, leaving the height 8 feet. There are four swing windows on each side, and two good ventilators in the

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centre of alley. The horse barn is 36 by 40 feet—one part used for carriage house; a nine foot stone wall underneath, which basement is used for stables; there is a shed in front.

Fence.—The most of our fence is stone wall; we have 800 rods, varying from three and a half to five feet high—300 rods three and a half, and 500 rods five feet; the five foot wall costs, to dig the stone and build the wall, $2 per rod; the three and a half foot $1.25 per rod. We have 200 rods of board fence—the bottom board 8 inches wide, the second 7 in., the next two 6 in. each, with a 7 inch cap board, that is spiked on the top board and on the top of the posts; the length of board 16½ feet, with three posts; when I nail the boards I break joints with all, so as not to have a panel open in one place. Board fence costs $1.25 per rod. We have 130 rods of common rail fence. The three and a half foot stone wall has one rail laid on top of wall, then staked and rail on top.

JASON C. OSGOOD.

J. C. Osgood's Maple Grove farm,

1860, Dec 1. *Dr.*

To 3 team horses	$300 00	
3 three year old colts	225 00	
		$525 00
wagons, sleighs and farm implements		700 00
30 cows, $25	$750 00	
2 two year old heifers, $15	30 00	
9 spring calves, $6	54 00	
1 bull	12 00	
		846 00
8 store hogs, $6	$48 00	
100 hens and chickens, 12c	12 00	
6 turkeys, 6s	4 50	
		64 50
100 tons of hay in barn, $7	$700 00	
cornstalks	14 00	
straw	15 00	
1,000 bushels of carrots, 20c	200 00	
600 bushels of potatoes, 2s	150 00	
		1,079 00
2,100 lbs. pork, 5c		105 00
200 bushels corn, 4s	$100 00	
700 bushels oats, 27c	189 00	
20 bushels wheat, 10s	25 00	

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To garden produce	$20 00		
apples and cider	20 00		
			$354 00
			$3,673 50

Expenses for labor, &c., for the year ending Dec. 1, 1861, as follows:

To N. Moyer and wife, as overseers	$300 00		
1 man, 8½ months, $15.50	114 75		
1 boy, 7 months, $8	56 00		
1 man, 12 months (rent and fuel furnished)	132 00		
30 days' work in harvest	20 00		
1 woman by the year	65 00		
1 woman 36 weeks, 12s	54 00		
			741 75
100 days' work of carpenters on barns, 10s	$125 00		
27 days' work of masons laying wall, 10s.	33 75		
lumber, sash, nails, &c., for barn	24 61		
			183 36
10 tons plaster and 3 tons mill feed	$50 00		
blacksmith's bill $30, cheese boxes $24	54 00		
store account, including butter firkins, &c.	182 00		
taxes for 1861	54 00		
			340 00
			$4,938 61

1861, Dec. 1.	*Farm.*		*Cr.*
By wagons, sleighs and farm implements			$700 00
3 team horses	$300 00		
2 four year old colts	225 00		
			525 00
30 cows, $25	$750 00		
3 two year old heifers	48 00		
9 one year old heifers, $12	108 00		
10 spring calves, $6	60 00		
1 bull	16 00		
			982 00
8 store hogs, $5	$40 00		
100 hens and chickens, 12c	12 00		
12 turkeys, 6s	9 00		
			61 00
110 tons of hay in barn, $8	$880 00		
5½ tons cornstalks	35 00		

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By straw	$25 00	
1,000 bushels carrots and beets, 20c	200 00	
250 bushels potatoes, 37c	93 75	
775 bushels oats, 32c	248 00	
400 bushels corn, 4s	200 00	
54 bushels wheat, 8s	54 00	
garden vegetables	20 00	
apples and cider	40 00	
480 lbs. cheese and 60 lbs. butter	48 10	
2,400 lbs. pork, 5c	120 00	
		$1,963 85
		$4,231 85
sale of butter, 850 lbs., at 21c	$178 50	
sale of cheese, 11,188 lbs., at 7c	783 16	
		961 16
sale of eggs, 12 doz., at 12½c	$1 50	
sale of pork, 250 lbs., at 10c	25 00	
sale of hams, 300 lbs., at 12c	36 00	
sale of sausages, 100 lbs., at 10c	10 00	
sale of poultry, 150 lbs., at 8c	12 00	
sale of lard, 150 lbs., at 10c	15 00	
		99 50
sale of oats, 300 bushels, at 2s	$75 00	
sale of potatoes, 45 bushels, at 2s	11 25	
sale of corn, 87 bushels, at 4s	43 50	
		129 75
sale of one beef cow		35 00
labor of farm hands building barn		50 00
labor of farm hands building wall		10 00
labor with team		7 00
boarding carpenters and masons, 137 days, at 2s		31 75
carpenter's and mason's work on barn		119 50
building 35 rods of board fence, 31c		10 85
building 11 rods of stone wall, 12s		16 50
10 days' hire of stone puller, $5		50 00
farm hands with stone puller		10 25
sale of one colt		75 00
sale of hides		15 25
Total credits		$5,853 36
Dr. account brought forward		4,938 61
Balance, gain of farm for the year		$914 75

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I do hereby certify that the foregoing statement of my farm is true, to the best of my knowledge and belief.

J. C. OSGOOD.

Sworn before me, February 4, 1862,
W. T. WILLARD, *Commissioner of Deeds, City of Troy, Rensselaer county, N. Y.*

REMARKS.—It will be observed that the above account is of a farm worked wholly by hired labor. That the overseer and his wife are paid a salary of $300 a year, together with rent and board. In crediting the farm, nothing has been allowed for board of myself and family while visiting there, which visits are often, and frequently we are accompanied with friends, and remain for weeks together, making that amount considerable during an entire year. Nothing has been allowed for the loss of two cows by milk sickness, which occurred soon after calving, being a loss of not less than $60; besides a loss on the potato crop this year, by rot, was upwards of 500 bushels. The amount of butter and cheese is exclusive of that used in the family, as this account is made up from my overseer's account with me.

JASON C. OSGOOD.

DAIRY FARM OF HON. ZADOCK PRATT,

PRATTSVILLE, GREENE COUNTY, N. Y.

Among the dairying regions of this country, in which butter making has been carried on most successfully, there is probably none that excels, in peculiar adaptedness for the purpose, that belt of territory, varying from twenty-five to fifty miles in width, which begins with Orange county, near the city of New York, and extends from the Hudson river, in a northwestwardly direction, perhaps one hundred or one hundred and twenty-five miles, into the heart of the State.

In this belt of land, the county of Greene, *as a whole*, is not embraced. It is a county which nature has favored, to say the least, with a due proportion of mountains and rocks. Of its area, which is stated at 686 square miles, or about 440,000 acres, there were returned, by the census of 1855:

Acres of land improved	212,224
Acres of land unimproved	150,604
	362,828

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Leaving more than one-sixth of the total surface unaccounted for, among its wild acclivities and lofty summits. The bluffs that overlook the river; the parallel ridge of hills beyond; the Catskill range, along the southern border, stretching away into the county of Delaware; the branches of this range, occupying most of the west and northwestern parts of Greene, with their connecting highlands and frequent spurs—combine to break up nearly its whole territory into a rough succession of picturesque heights, not too storm-beaten or bare of soil to nurture the trees of the forest—or hillside pastures, not too steep and stony for grazing purposes, and, now and then, compelled to yield their quota of Indian corn or oats, with occasionally a crop of winter grain. Along the streams, moreover, there are alluvial flats of some extent, well enriched by the wash of the mountains; but the grass that grows upon the heights themselves is thought to be sweeter and more nourishing for cattle, and it is a matter of some doubt whether, in proportion to the pecuniary value at which they are rated, the flats can be farmed by the dairyman and grazier at any greater profit than the hills. And it should be added, as generally characteristic of the latter—those of the greatest height, probably, alone to be excepted—that their summits are found perhaps equally as productive as their sides.

While the immigrants who, at a very early period, settled the immediate banks of the Hudson river, were slowly finding their way along the water courses into the interior—others, following up the course of the Schoharie creek, were penetrating from the Mohawk on the northward into western and northwestern Greene, and, before the Revolutionary war, the lowlands in that corner of the county which looks out upon Delaware in front and Schoharie on the right, had already been dotted over with the homes of these sturdy pioneers and farmers. In process of time the extensive hemlock forests that covered the mountain lands attracted thither a new and thriving business; tanneries sprang into existence along the streams, and the bark-peelers and teamsters engaged in this employment, and the large amounts of money constantly diffused in wages, made the whole region one of active and prosperous industry. Over the road, leading back from the village of Catskill, through Prattsville, in the extreme northwestern portion of the county, came moreover a considerable portion of the travel and traffic from middle and western New York, to the Hudson, particularly the droves of cattle, before the days of

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the railroads; stage-coaching was here found in all its glory, and the taverns with which the roads were lined, were as sure to be full and busy as the coaches themselves.

After the hemlock forests were cleared away, it became necessary to test the capacity of the land for production of another kind; and although the amount of grain it yields has not been equal to the home consumption, its grasses, as already intimated, at once proved well adapted either for curing or for pasturage. Within a feasible distance from the river for carriage thither, hay has therefore been an important crop—in the townships, for example, of Coxsackie, Catskill, Greenville and New Baltimore; Coxsackie and New Baltimore have also sent to market considerable quantities of potatoes, and all the towns mentioned produce more or less butter. As we recede from the river, however, the advantage of dairying, as compared with selling hay, increases; a half-cent per pound, for the transportation of a firkin of butter, is not felt to be quite so serious a tax, as fifty cents per 100 lbs. on a bale of hay! According to the census of 1855, the towns producing proportionately the most butter, were, in the order named, Prattsville, Jewett, Lexington, Halcott and Ashland; all of them in the western part of the county.

And here it is, that, by penetrating into the county from the Hudson river at Catskill, winding up, over and down the noted mountain range from which this village takes its name—striking the Batavia kill, and following its narrow gorge into the townships of Ashland and Prattsville—here it is that we may fairly regard ourselves as entering upon the great butter making region referred to at the beginning. And, whether fancifully or not, some of the old tanners maintain that it is the *hemlock land* which proves the best for butter making, and imparts the sweetest and richest flavor. Notwithstanding, as already intimated, the land may strike a stranger as somewhat rough and rocky, he will, upon examination, soon become convinced that, either from climate or soil, from abundance of the purest and coolest soft water, or peculiar sweetness of herbage, nature evidently intended her best dairying to be done among the mountains. Indeed, the farmer's great object, everywhere, is to obtain "the right crop in the right place;" and, if *greater attention was paid to the natural adaptabilities and requirements of different localities*, in all cases, our farming, as a whole, would undoubtedly be *far more intelligently and successfully carried on.*

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The farm of Col. Pratt has been already described in previous volumes of the Transactions, and the statistics of its production published for several previous years. It contains 365 acres, 40 of which are fine alluvial soil—the residue, what is called hemlock land (loam and gravel), lying on the slope of the Catskill mountain. As already intimated, the hemlock was originally cut for the purpose of obtaining the bark for use in Col. Pratt's tannery, and the land afterward cleared up, seeded down, and fenced with stone wall, of which about *five miles* have now been laid—and the whole converted into a dairy farm, upon which fifty cows have been kept throughout the last five years. Accurate accounts have been kept of the expenses and returns of this farm, a summary of which, for the past and four preceding seasons, is presented in the following table:

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STATISTICS OF HON. Z. PRATT'S DAIRY FARM,

For the usual season of about eight months, for the years 1857, 1858, 1859, 1860, *and* 1861—*Fifty cows of what are called native breed, being kept each year.*

MILK.

	1857.		1858.		1859.		1860.		1861.	
	In lbs.	In gals.	In lbs.	In gals.	In lbs.	In gals.	In lbs.	In gals.	In lbs.	In gals.
Whole product.....	254,736	31,842	260,450	32,556¼	240,700	30,087	217,736	26,276	227,757	28,301
Average per cow.....	5,094.48	636.31	5,209	651.12	4,814	601.74	4,354.75	525¼	4,555	572.26
Average per day.....	1,044	130½	1,067½	133.4	982½	122⅞	888.72	107.28	876	108.85
Average per day for each cow.	20.80	2.60	21.30	2.70	19.65	2.45	17.77	2.14	17.5	2.17
Greatest av. in one day per cow.	24.18	3.25	31.50	3.31	28.35	3.53	25.60	3.40	26.7	3.34

[Table continued on next page.]

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STATISTICS OF HON. Z. PRATT'S DAIRY FARM—Continued.

BUTTER.

	1857.		1858.		1859.		1860.		1861.	
Whole product	6,500 pounds.		8,050 pounds.		8,300 pounds.		9,143 pounds.		10,860 pounds.	
Average per cow	130 do		161 do		166 do		182.86 do		217.20 do	
Average per day	26.61 do		33 do		33.92 do		37.72 do		41.76 do	
Average per day per cow	8.10 ounces.		10.56 ounces.		10.84 ounces.		11.94 ounces.		13.36 ounces.	
Average milk to 1 lb. of butter	39.20 lbs. or 20 qts.		32.33 lbs. or 16.16 qts.		29 lbs. or 14.50 qts.		23.30 lbs. or 11.20 qts.		21 lbs. or 10.42 qts.	
PORK.	Per cow.	Total.	Per cow.	Total.	Per cow.	Total.	Per cow.	Total.	Per cow.	Total.
Pork made, in pounds	92¼	4,627	148	7,403	129	6,455	130.3	6,516	132½	6,625
SALES.										
Butter sold	$30 95	$1,547 54	$38 48	$1,924 02	$41 40	$2,070 00	$42 97	$2,148 89	$49 91	$2,497 80
Pork sold	6 56	328 16	8 42	421 08	8 36	418 00	9 12	456 12	6 62	331 25
Calves sold	.....	.....	.....	.....	.....	.....	.....	80 00	.....	38 65
Total	$37 51	$1,875 70	$46 90	$2,345 10	$49 76	$2,488 00	$52 09	$2,685 01	$56 49	$2,867 70
Expenses for working farm over proceeds of same, not enumerated above, including $700 for each year, for interest on investment for farm and stock, $10,000	.....	1,415 50	.....	1,380 50	.....	1,550 00	.....	1,125 75	.....	1,150 75
Net profits above interest	.....	$460 20	.....	$964 60	.....	$938 00	.....	$1,559 26	.....	$1,716 95

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From this table, it will be noticed that the production of butter, per cow, has shown a regular and gratifying increase during the past five years, until it has now reached an average of 217⅛ pounds for each of the whole fifty head—an unusual amount, even for a small dairy; and it is of course much easier to make the average a large one where a few select animals are chosen, than it is to obtain the same average throughout a dairy of such extent. It is also shown that *each cow* has given, during the past season, *over two and a quarter tons of milk*, by weight, and yielded a gross pecuniary return of *nearly fifty dollars.*

In regard to the increase manifested during the season of 1861, over that of 1860, in the yield of butter, namely, from 182 pounds per head in the one, to 217 pounds in the other, an increase not far short of twenty per cent., it may be remarked, not only that the character of the past summer itself has been remarkably favorable, more butter than usual having been made by dairymen generally, but also that, in the belief that *the best milkers yield the most profit*, the best cows that could be found for dairy purposes have been carefully selected in the new purchases that have been made, while in point of fact only about thirty of the fifty cows milked in 1861 formed a part of the herd in 1860.

The making of good butter, although in reality quite simple, is something which proves very puzzling to many people, if one may judge by the many different grades of this article which are offered in our markets, and the varying prices which our farmers receive for the products of their dairies. The following description of the system adopted on this farm, is therefore presented, beginning with the feed given to the cows, in the hope that if it contains nothing that is particularly novel to old and long experienced butter makers, it may yet furnish some useful hints to younger aspirants for success in this important branch of the farming of the State.

FEEDING THE COWS.

The feed given to the cows has been two quarts each per day of mixed provender, consisting of one-third each of corn, oats and buckwheat, ground together, hay also being supplied, from February until the tenth of May; then grass alone until September 1st, when corn sown broadcast for forage began to be fed, and afterwards pumpkins, both of which latter were found to add to the quantity and heighten the flavor and color of the butter.

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MILKING THE COWS.

It is important *always* to treat milking cows with kindness; blows and harsh words have as much effect in rendering them ugly, as they would probably have upon children or human servants. Especially at milking, it is well never to forget that gentleness is an essential requisite; as far as possible to have the same milker always attend to the same cow, and in any case to have the operation *thoroughly* as well as kindly completed. By attention in these respects, "spilt milk" is an almost unheard of phenomenon here; the cows are, moreover, always milked in the stable, with a feed before them, and *with great regularity* at 6 o'clock, morning and evening, the year round. No one of these items should be overlooked.

CARRYING IN THE MILK.

The maids who do the milking are not bothered to carry in the milk as fast as a pail is filled; but some one else, generally the farm manager himself, replaces the full pail with an empty one, carrying in the milk and registering its weight. It is then strained from the pail into a large can, stirred around with a long handled ladle until the foam disappears, and then ladled into the pans. Two points are here worth noting particularly: 1. If the milk is strained directly into the pan, the eye alone will be depended on as to the quantity poured in, and the foam gathered on the surface is thought to be just so much in the way of the rising of the cream. 2. The milk of different cows will differ somewhat as to the time required for the perfect rising of the cream; more careful watching is therefore necessary as regards each separate pan, if the milk is set separately, than if that of several cows is so intermingled before setting that the cream on all must rise alike.

SETTING THE MILK.

Tin pans are used of what is there commonly called an "eight-quart size." But on trial we found the pan actually to contain about seven quarts; it is large in diameter with flaring sides. The quantity ladled into each pan varies—in hot weather two and a half quarts, and in cooler weather three quarts. These exact quantities were decided upon, after careful trials with greater and smaller quantities had shown conclusively that the most cream was thus obtained, and they are now adhered to with scrupulous accuracy. In cool weather the milk may stand

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longer than in hot weather, without danger, consequently it will bear to be a little deeper. In the pan containing 2½ quarts the milk stands only *one and a quarter inches in depth;* in the pan containing three quarts, it is one and a half inches deep. This is a very strong argument in behalf of *shallow setting*, the practice referred to having been closely followed for two years past, and, as is thought, to very great advantage.

TIME TO SKIM THE CREAM.

If the milk fairly begins to be thick at bottom, it is thought ready to skim; it may be allowed to stand until it can be cut with a knife all through, but there is great risk in too long standing—if it once begins to turn partly to water, the cream will have a bitter taste that can never be overcome.

TEMPERATURE.

The temperature of the milk room is kept at as nearly 62 deg. the year round as possible, and probably runs from that point to 65 deg., or in very warm weather perhaps to 70 deg. or 72 deg., but the latter are only exceptional cases.

CHURNING.

The churning is done in two barrel churns, the dashers of which are moved by an overshot water wheel of perhaps fourteen feet diameter, just outside the churn room. The quantity churned at once is 13 to 14 gallons, yielding from 30 to 33 pounds butter, in each churn. In hot weather the temperature is carried down if possible to 61 deg. at starting, by means of ice, as the agitation of the milk with the warmer atmosphere will heighten this temperature somewhat before the butter comes; but 62 deg. is thought to be just the right point, if it can be got and maintained. Cold water may have to be put in to regulate the temperature during churning, but this is not done unless absolutely necessary.

The butter is now taken from the churn, and washed, generally three times, or until the water no longer brings away any buttermilk. It is next weighed, and salted with the best Ashton salt, sifted and accurately weighed out in the proportion of an ounce to a pound of butter. The only exception to this rule is in very hot weather, when a slight addition is made to the quantity of salt to replace what will be dissolved in getting out the last of the buttermilk—say 21 ounces of salt to 20 pounds of butter. After salting, the butter is put in pans on the cool stone floor of the butter cellar, where it stands four to six hours before the last

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of the buttermilk is worked out, after which it may again stand until the next morning before packing.

PACKING THE BUTTER.

The new firkin has a pail of boiling water thrown into it, which remains there until cool; brine is then substituted, which is allowed to stand for a day or two before the butter is packed. When filled with butter, a cloth is spread over the top, and a layer of coarse Turks Island salt, washed clean, placed upon the cloth. Temporary tops for the firkins are made of *round flat stones*, which are laid over them from the time the butter is packed until the firkin is finally headed up to go to market. These stones are thought to keep the temperature cooler and more even than any other cover. The firkins, it should be added, stand upon a wooden floor resting upon joists, or upon the joists themselves, so as to let the air pass underneath them.

MARKETING.

It has been found the neatest way of marketing to take off the salt from the top of the butter, turn down the firkin to let the brine drain off, and then replace the cloth wrung out in brine. As to the keeping qualities of the butter, there is never any difficulty; its character, the season through, is remarkably even—the first time, for instance, of sending a lot to New York last spring, April 2d, seven firkins were sent, of which three were new, and the other four kept over from the preceding fall; the butter dealer was afterwards asked if he had been able to detect any difference between them, but he had not, the whole selling as spring made butter.

RELATIVE WEIGHT AND STRENGTH OF THE MILK.

It has been matter of curiosity to note the variations, at different times, in the relative weight per quart of the milk, and quantity taken to make a pound of butter. The following statement gives the record at different dates, the first day of each month in 1860 and 1861, having been chosen for the purpose, and the milk of those particular days having been kept separate, and the butter made from it weighed by itself:

	1860.		1861.	
	Qts. to make 1 lb. butter.	Weight per gal.	Qts. to make 1 lb. butter.	Weight per gal.
May 1	12.96	7.91	21.20	8.02
June 1	11.43	8.28	12.40	7.74
July 1	12.14	8.30	10.74	8.03

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	1860.		1861.	
	Qts. to make 1 lb. butter.	Weight per gal.	Qts. to make 1 lb. butter.	Weight per gal.
August 1	11.35	8.66	10.45	8.28
September 1	11.83	8.09	9.94	8.12
October 1	9.28	8.53	8.85	8.07
November 1	8.21	7.56	8.50	8.12
Average of the above 7 days by themselves	11.03	8.19	10.29	8.05
Av. for the whole season, as p'r statement given on pages 89 and 90	11.20	8.28	10.42	8.05

OTHER FARMING MATTERS.

The crops of the farm, for the past two seasons, have been:

	1860.	1861.
Corn	367 bushels.	579 bushels.
Oats	150 do	--- do
Rye	100 do	--- do
Turnips	1,200 do	400 do
Potatoes	--- do	140 do
Carrots	--- do	1,100 do
Buckwheat	--- do	111 do
Cornstalks	49 tons.	60 tons.
Pumpkins	70 loads.	110 loads.

The proceeds of the corn crop, for the two years, were:

1860.

367 bush. corn, worth here 87½c.	$321 13
70 loads pumpkins, worth here $1.50	105 00
Total	$426 13

1861.

579 bush. corn, worth here 75c.	$434 25
110 loads pumpkins, worth here $1.25	137 25
Total	$571 50

And these totals are considered as so much *net gain* from the land under the corn crop, as the cornstalks, not included therein, are rated as more than an equivalent for the labor expended in its cultivation.

One word, in conclusion, as regards the farm buildings. The farm manager, who, with his wife, superintends all the operations

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of the dairy, occupies a dwelling from which he can overlook the whole farmstead, while the dairy adjoins him, with neat and capacious milk, churning and packing rooms, and a cool, sweet storage cellar, into which nothing that can taint the air is ever permitted to come. The water is turned on to the wheel which furnishes the power, from a reservoir on the hillside above, by pulling a wire, without leaving the house. Pure spring water, for all the requirements of the establishment, is also brought in by pipes. Adjoining, on the rear, is a building devoted to the pigs, for whose benefit the skimmed and buttermilk is carried, by a wooden channel, from the churn room, along the passage way in front of their sties, so that a simple slide will admit it at pleasure into each. There is a young orchard on the hillside near by, of over a hundred and fifty apple trees, recently set out for the benefit of the stock.

The aim in conducting this farm, in which the efforts of its proprietor are fully seconded by those of his active and intelligent manager, has been *to do everything well*, when it is undertaken at all, and to test fairly and fully the butter making capacities of such a farm under such a system of management. It is expected to enlarge the number of cows, from time to time, hereafter—the object hitherto having been to enlarge the production of the fifty that were kept, to its fullest extent, before increasing their number. The manager of the farm thinks he can now keep more cows, and still maintain the average production of each; indeed, the condition of the farm has been so much improved, under liberal manuring and good management, that he expresses entire confidence in its ability to sustain a dairy of seventy cows with less difficulty than it did fifty, three years ago, and in its ultimate ability, if it continues to improve in similar ratio, to sustain *double its present number.*

It is this spirit which should be emulated by all who are engaged in the cultivation of the soil. Let the *first effort* be, *not to enlarge the number of acres sown*, on a grain farm, or the number of cows milked on a dairy farm, but so to manage as to obtain the largest possible returns upon the old basis of operations, even if it should not be a still better way to reduce it somewhat at the beginning. When the produce (per acre, or per cow) appears to have reached nearly the full capacity of the land or animals, it is time enough to attempt more. This is what is meant in the often repeated remark that our farmers have *too*

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much land; not that there is any objection to a large farm, *if well farmed,* but that the proportion of the land to the capital employed upon it, is too great. Nothing is ever gained by an endeavor to cultivate a larger surface than can be well manured, well tilled, and well harvested; or to crowd too many animals, whether dairy or grazing stock, upon pastures where the grass is suffered to be eaten bare, and the land is yearly *skinned* of its plant-supporting ingredients, without the addition of anything to aid it in meeting these constant drafts.

Z. PRATT.

PRATTSVILLE, GREENE CO., *December*, 1861.

REPORT OF THE COMMITTEE ON FIELD CROPS.

WHEAT.

The committee have investigated the application of Sylvester Curtis, of Oneida county, for premium on winter wheat. The variety is the Mediterranean; the quality is very good, and the yield a large one. The accompanying statements are very full, and we take pleasure in awarding Mr. Curtis the first premium, $15.00.

RYE AND OATS.

The committee have investigated the application of C. L. Kiersted, of Ulster county, for premiums on crops of rye raised on two lots—one of three acres, and one of two acres; and also application of same for premium on two crops of oats raised on lots, one of two acres, and one of three acres, as per his accompanying statements.

Mr. Kiersted owns a farm of about two hundred acres; and the lots on which the grain here presented for premiums was raised, were very small, and the land low—situated on Kingston flats. The committee feel it their duty to state that they would have been more pleased if Mr. Kiersted had presented a statement as to the average yield of said crops on his entire farm. The committee would also state that the rye presented is not of an excellent quality, such as they could recommend for seed, but remarkable for its large yield.

As there is no competition this year, and as Mr. Kiersted obtained the premium a year ago for each of said crops, the committee have concluded to award Mr. Kiersted the certificate of

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the Society, that he has sustained his reputation for raising the largest crops of rye and oats respectively.

PEAS.

The crop of peas, raised by Norman Gowdy, of Lowville, Lewis county, on $1\frac{70}{100}$ acres, yield of 60 bushels, at a profit of $31.71, is a very good one, and the sample exhibited, of excellent quality. No statements accompany Mr. Gowdy's application, which prevents the committee awarding him a premium.

JOHN HAROLD,
WM. CHAMBERLAIN,
JAMES WOOD,
THOMAS S. STRONG,
Committee.

IMPLEMENTS.

A special committee on the implements exhibited, was appointed, consisting of Messrs. A. B. Conger, J. Stanton Gould, and James Geddes, who presented the following report:

REPORT OF THE SPECIAL COMMITTEE ON IMPLEMENTS.

The display and variety of these mechanical aids of the farmer, were remarkable for this period of the year, and deserve encouragement with reference to the continuance of such exhibitions, as far as the same can be done consistently with the established rules of the Society. These oblige your committee to distinguish and divide into general classes of *models*, and implements fit for actual service.

Of the former, your committee notice a changeable corn plow and portable fence, exhibited by Mr. H. S. Chichester, of Troy. The former is a very ingenious combination of two corn plows for purposes of cultivation and potato digging, and seems, in its adjustments, to be serviceable as well as simple, and by consequence cheap. This invention promises many advantageous results, and new varieties of combination and application. To the inventor and exhibitor your committee recommend the volume of Transactions for 1860. In this general class was also exhibited a reversible mower, patented by Mr. Darby, and exhibited by J. H. Balch, of Cambridge. This machine, by severing the main axle in the middle, admits the communication of power and motion to the rear of the machine, and also in the central line, so that the process of reversing is complete, and secures a very

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high raising of the cutter bar, to avoid obstructions on the field. To this they recommend a like premium.

Of the machines of full size, they notice with commendation the Shares' Coulter harrow, exhibited by Mr. Pease; two Eureka feed cutters, capable of application to machines, by Messrs. Emery; one for hand purposes, by Messrs. Dederick, all of Albany; and one of the large sized cutters of Cumings' patent, exhibited by Dutton, Carys & Smith, of Fulton. The last seems to be solely for power application.

Mr. Shipman, of Springfield Centre, Otsego county, exhibits his mower, the claim for which is the rapidity of its motion in cutting, effected by applying the connecting rod to the pitman at one inch from its centre, and in the gearing of the machine, by a rapid diminution in the diameter of the pinion wheels. Mr. Morgan, of Deerfield, exhibited his patent harrow, which combines many desiderata in the motion of the machine over rough and uneven ground.

A churn put in operation by D. W. Seeley, of Albany, exhibits great ingenuity in the combination of the revolving dashers and in the rapid presentation of the milk, drop by drop, as it were, to the oxygen of the atmosphere, before entering the body of the machine.

Butter was brought from milk, said to have been bought in the market on the morning of trial, in one and a half minutes, and presents, under the microscope, a very perfect appearance of granulation.

Lastly, your committee notice the cutter knives of Messrs. Sweet Bros. & Co., of Syracuse, said to be of superior steel.

Of these, your committee believe that a regard to the interests of the Society, as well as of the exhibitors, demand that they should be severally and in their respective classes, subjected to trial in competition, where all the practical advantages of each in operation, may receive the encomium and the graded prizes of your able committees, and they now recommend a copy of the Transactions of 1860 to each.

A. B. CONGER,
J. STANTON GOULD,
JAS. GEDDES.

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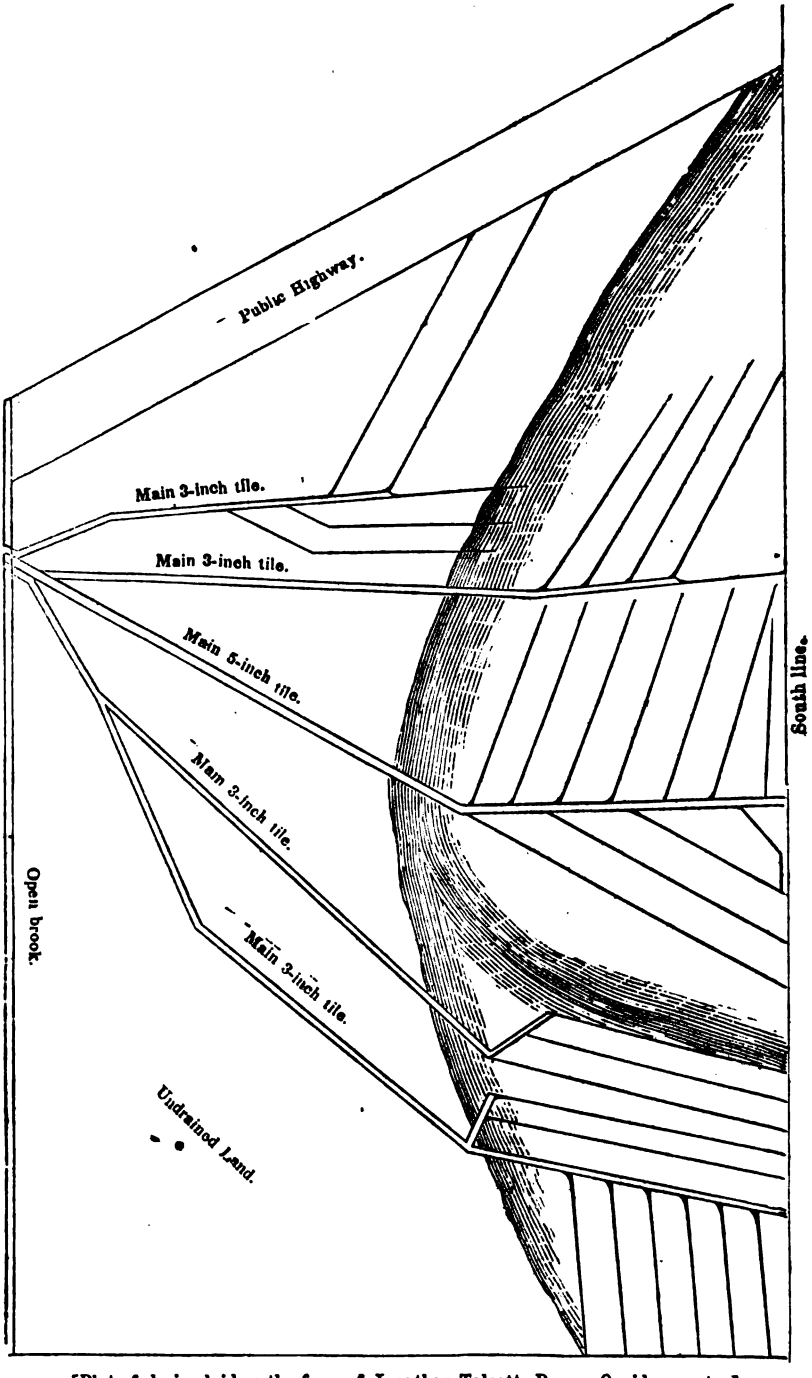

[Plot of drains laid on the farm of Jonathan Talcott, Rome, Oneida county.]

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STATEMENT ON DRAINING.

By J. Talcott, Rome, Oneida Co.

Awarded premium of $20.

B. P. Johnson, Esq.—I herewith send my manner of draining for the year—the amount, about 800 rods, on some 25 acres; about 12 acres were planted to corn, and two acres to potatoes, and five acres are now sown to winter wheat, the balance reserved for spring crops this season; the tile are mostly 2-inch, the mains are 3-inch, except one drain, which is of 5-inch tile; they are laid at the depth of three feet, and through knolls are deeper, some places four to six feet deep; the 2 and 3-inch cost 40 cents per rod, the 5-inch is through a deep cut, and will cost in this case $1 per rod.

The result is a plowing field where there was a swamp hole previous to commencing the drainage, and the corn crop in the wettest places was very heavy the past season, the potatoes good, and the wheat looked well when winter set in. I send you a diagram, showing the course of drains, the plan adopted, &c.; there was quite a bank to be dug through for an outlet, and by so doing save distance, and also will need less drains to accomplish the object, as the water is collected into the drains above the bank, and when cut through stops all soakage on to the lower land below, which keeps it dry without the expense of drains in it.

In the rough sketch sent (see figure on page 100), the mains are double lines and marked; the single lines are minors with 2-inch tile; the pencil sketches show the ridge of land; the lowest point in the field is at the outlet of the drain; shall have but one outlet in the piece, and that is into an open brook; the soil a muck and clay, in the basin above the ridge, with water a foot deep much of the year before draining; the soil below the ridge, a gravel; from experience thus far, all will now be dry and tillage land.

The expense is as follows, viz:

750 rods, at 40c.	$300 00
50 rods, at $1	50 00
	$350 00

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The expense would have been less if laid at a less depth; but experience has taught me that tile, in all cases, should be laid three feet deep, and much of this is four feet deep, through the ridges of the land. The preceding statement is true, to the best of my knowledge and belief.

All of which is respectfully submitted.

JONATHAN TALCOTT.

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POINTS OF EXCELLENCE IN CATTLE.

The Executive Committee established, several years since, points of excellence in cattle, to which they called the attention of judges, believing them to be of great value in determining the qualities of the animals submitted for examination. They are pleased, in submitting the report of the judges on Devon cattle, at the late fair, to present a full compliance with the requirements of the Society, and they desire to tender to the judges their most cordial thanks for the valuable report they have submitted, and for their faithful compliance with the requirements of the Society.

We republish the points adopted by the Society in 1853, and the cut of the skeleton of a bullock (see page 104), showing the various points referred to in the points of excellence.

POINTS OF EXCELLENCE IN CATTLE, ADOPTED BY THE NEW YORK STATE AGRICULTURAL SOCIETY, FOR THE GUIDANCE OF THE JUDGES AT THEIR ANNUAL FAIRS.

The numbers affixed to the points described, form the *maximum* that is to be allowed for each; and in proportion as the animal under examination is deficient in any point, so will the judges decrease the number, even should nothing be allowed for that point.

Points which are characteristic, and therefore *common to a breed*, though very valuable in themselves, are marked comparatively low, because they are easily obtained and demand but little skill or attention on the part of the breeder; nevertheless, an animal not possessing the characteristics of *its own breed*, must of necessity be almost worthless. On the other hand, it will be observed that points of less value, perhaps, in themselves, but which are characteristic *deficiencies* in the breed, or at any rate difficult to sustain at their maximum excellence, are marked numerically high, as they go far to complete or perfect the natural excellence of the animal.

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A, Occipital Bone; B, Frontal Bone; C, Horn; D, Eye; E, Nose; F, Lip; n, Face: m, Cheek; H, Dew-lap; M, Brisket; N, Chest; I, Neck; k, Shoulder-blade; b, Shoulder-point; L, Crop; Q, Back; R, Loin; S, Hips, or Hucks or Hooks; u, Thurl, or Whirl Bone, or Round Bone; T, Rump; W, Plates of the Belly; V, Flank; X, Cord of the Tail; O, Fore-arm; Y, Thigh; h, Hook; p, the Elbow; r, the Leg or Shank, Cannon Bone; x, Ear.

Again, for the above reasons, it will be found that the *same* points, in *different breeds*, have different numerical values attached to them.

POINTS OF A SHORTHORN COW.

PEDIGREE—showing unbroken descent, on both sides, from known animals, derived from English herds, as found in the English or American Herd Books, and without this, an animal cannot compete in this class.

3 THE HEAD—small, lean and bony, tapering to the muzzle.

2 THE FACE—somewhat long, the fleshy portion of the NOSE of a light delicate color.

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2 THE EYE—is of great significance, and should be prominent, bright and clear—"prominent," from an accumulation of "adeps" in the back part of its socket, which indicates a tendency to lay on fat—"bright," as an evidence of a good disposition—"clear," as a guaranty of the animal's health; whereas, a dull, sluggish eye belongs to a slow feeder, and a wild, restless eye betrays an unquiet, fitful temper.

1 THE HORNS—light in substance and waxy in color, and symmetrically set on the head; the EAR large, thin, and with considerable action.

2 THE NECK—rather short than long, tapering to the head; clean in the throat, and full at its base, thus covering and filling out the points of the shoulders.

14 THE CHEST—broad from point to point of the shoulders; deep from the anterior dorsal vertebra to the floor of the sternum, and both round and full just back of the elbows; sometimes designated by the phrase "thick through the heart." These are unquestionably the most important points in every animal, as constitution must depend on their perfect development, and the ample room thus afforded for the free action of the heart and lungs.

5 THE BRISKET—however deep or projecting, must not be confounded with *capacity* of chest; for though a very attractive and selling point, it, in reality, adds nothing to the space within, however it may increase the girth without. It is, in fact, nothing more nor less than a muscular adipose substance, attached to the anterior portion of the sternum, or breast-bone, and thence extending itself back. This form, however, of the brisket indicates a disposition to lay on fat generally throughout the frame, and in this point of view is valuable.

4 THE SHOULDER—where weight, as in the Shorthorn, is the object, should be somewhat upright and of good width at the points, with the blade-bone just sufficiently curved to blend its upper portion smoothly with the crops.

8 THE CROPS—must be full and level with the shoulders and back; and is, perhaps, one of the most difficult points to breed right in the Shorthorn.

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8 THE BACK, LOIN and HIPS—should be broad and wide, forming a straight and even line from the neck to the setting on of the tail, the hips or hucks round and well covered.

5 THE RUMPS—laid up high, with plenty of flesh on their extremities.

2 THE PELVIS—should be large, indicated by the width of the hips (as already mentioned) and the breadth of the twist.

3 THE TWIST—should be so well filled out in its "seam" as to form nearly an even and wide plain, between the thighs.

5 THE QUARTERS—long, straight, and well developed downwards.

4 THE CARCASS—round; the ribs nearly circular, and extending well back.

3 THE FLANKS—deep, wide, and full in proportion to condition.

2 THE LEG—short, straight, and standing square with the body.

3 THE PLATES—of the belly, strong, and thus preserving nearly a straight under line.

2 THE TAIL—flat and broad at its root, but fine in its cord, and placed *high up*, and on a level with rumps.

2 THE CARRIAGE—of an animal gives style and beauty; the walk should be square and the step quick; the head up.

15 QUALITY—On this the thriftiness, the feeding properties, and the value of the animal depend; and upon the touch of this quality rests, in a good measure, the grazier's and the butcher's judgment. If the "touch" be good, some deficiency of form may be excused; but if it be hard and stiff, nothing can compensate for so unpromising a feature. In raising the skin from the body, between the thumb and finger, it should have a soft, flexible and substantial feel, and when beneath the outspread hand, it should move easily with it, and under it, as though resting on a soft, elastic, cellular substance; which, however, becomes firmer as the animal "ripens." A thin, papery skin is objectionable, more especially in a cold climate.

2 THE COAT—should be thick, short and mossy, with longer hair in winter, fine, soft and glossy in summer.

3 THE UDDER—pliable and thin in its texture, reaching well forward, roomy behind, and the teats standing wide apart,
—— and of convenient size.
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Points of the Shorthorn Bull.

As regards the male animal, it is only necessary to remark, that the points desirable in the female are generally so in the male, but must, of course, be attended by that masculine character which is inseparable from a strong, vigorous constitution. Even a certain degree of coarseness is admissible, but then it must be so exclusively of a masculine description as never to be discovered in the females of his get.

In contra-distinction to the cow, the head of the bull may be shorter, the frontal-bone broader, and the occipital flat and stronger, that it may receive and sustain the horn—and this latter may be excused if a little heavy at the base, so its upward form, its quality and color be right. Neither is the looseness of the skin attached to, and depending from the under jaw, to be deemed other than a feature of the sex, *provided* it is not extended beyond the bone, but leaves the gullet and throat clean and free from dewlap.

The upper portion of the neck should be full and *muscular*, for it is an indication of strength, power and constitution. The spine should be strong, the bones of the loin long and broad, and the whole muscular system wide and thoroughly developed over the entire frame.

NORTH DEVONS.

Purity of Blood, as traced back satisfactorily to importations of both dam and sire, from known English breeders, or as found in the lately established Herd Book for North Devons, and without this, an animal cannot compete in this class.

4 The Head—should be small, lean and bony, the forehead wide, flat, or from a fullness of the frontal bone over the eyes, somewhat dishing; the face straight; the muzzle fine; the nostrils open; the lips thin and rather flat.

4 The Nose—of a light delicate orange-color.

4 The Eye—should be bright, prominent, and clear, but mild and gentle in its expression, as indicative of that spirited, but tractable disposition so necessary to cattle that must bear the yoke; a beautiful orange-colored ring should invariably surround the eye.

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2 The Ear—thin; of a rich orange-color within, of medium size, with a quick and ready movement, expressive of attention.

2 The Horns—light, tapering, of a waxy color toward the extremity, and gaily as well as symmetrically placed on the head; the occipital bone narrow, thus bringing the base of the horns nearer together.

2 The Neck—of medium length, somewhat light in substance, very clean, and well set up on the shoulder.

14 The Chest—deep and round, carrying its fullness well back of the elbows, thus affording, by the aid of a springing rib, abundant internal room for the action of thoracic viscera, the heart and lungs, and that too, without an *extreme* width forward, and between the points of the shoulders, which might interfere with the action of the animal.

4 The Brisket—it being assumed that it adds nothing to the internal capacity of the chest must not overload the breast, but be sufficiently developed to guaranty a feeding property, attended with a full proportion of fatty secretion.

4 The Shoulder—is, in this breed, a very beautiful and important point, and should in a *degree* approximate in form to that of the horse. It should take a more sloping position than is found in most other breeds, with its points less projecting, and angular, and the blade bone more curved, thus blending with and forming a fine wither, rising a little above the level line of the back.

3 The Crops—full and even, forming a true line with the somewhat rising shoulder, and level back, without either drop or hollow.

9 Back, Loin and Hips—broad and wide, running on a level with the setting on of the tail.

5 The Rumps—lying broad apart, high, and well covered.

2 The Pelvis—wide.

3 The Twist—full and broad.

6 The Quarters—long and thoroughly filled up between the hooks or hip bones, and the rumps; with a good muscular development down the thigh to the hocks.

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3 THE FLANK—Moderately deep, full and mellow in proportion to condition.

5 THE LEGS—not too short, and standing as square, and straight behind, as may be compatible with activity. The bone quite small below the hock and knee; the sinews large and clean, with the fore-arm well developed.

2 THE CARCASS—round and straight; its posterior ribs almost circular, extending well back, and springing nearly horizontally from the vertebra, giving, in fact, much greater capacity than would at first appear.

1 THE TAIL—at its junction, level with the back, long, very slender in its cord, and finishing with a tassel of white hair.

1 THE COLOR—in its *shades* and *degrees*, is more or less governed by fashion; but in the Devon is always red. Formerly a rich blood-red was the favorite color, and a test of purity; and now a somewhat lighter color is in vogue, approaching rather nearer to that of the *South* Devon, which is a larger, coarser, stronger animal. In all cases the color grows lighter round the muzzle, while a dark mahogany color, verging almost to a black, and growing yet darker about the head, always was a very questionable color for a *true North Devon*, more especially when accompanied by a dark nose.

1 THE HAIR—should be short, thick, and fine; and if showing on its surface a fine curl, or ripple, it looks richer in color, and is supposed to indicate a hardier and more thrifty animal.

1 THE UDDER—should be such as will afford the best promise of capacity and product.

3 CARRIAGE—The Devons having, from their excellence in the yoke, another destiny besides that of the butcher's block, it is all-important that the animal's carriage should indicate as much; but to obtain this, something of the heavy, inert, squarely moulded frame of the merely beefing animal must be relinquished for a lighter and more active frame.

15 QUALITY—On this the thriftiness, the feeding properties, and the value of the animal depend; and upon the touch of

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this quality rests, in a good measure, the grazier's and the butcher's judgment. If the "touch" be good, some deficiency of form may be excused; but if it be hard and stiff, nothing can compensate for so unpromising a feature. In raising the skin from the body, between the thumb and finger, it should have a soft flexible and substantial feel, and when beneath the outspread hand, it should move easily with it, and under it, as though resting on a soft, elastic, cellular substance; which, however, becomes
— firmer as the animal "ripens." A thin papery skin is
100 objectionable, more especially in a cold climate.

Points of the Devon Bull.

As regards the male animal, it is only necessary to remark, that the points desirable in the female are generally so in the male, but must, of course, be attended by that masculine character which is inseparable from a strong, vigorous constitution. Even a certain degree of coarseness is admissible, but then it must be so exclusively of a masculine description as never to be discovered in the females of his get.

In contra-distinction to the cows, the head of the bull may be shorter, the frontal-bone broader, and the occipital flat and stronger, that it may receive and sustain the horn—and this latter may be excused if a little heavy at the base, so its upward form, its quality and color be right. Neither is the looseness of the skin, attached to, and depending from the under jaw, to be deemed other than a feature of the sex, *provided* it is not extended beyond the bone, but leaves the gullet and throat clean and free from dewlap.

The upper portion of the neck should be full and *muscular*, for it is an indication of strength, power and constitution. The spine should be strong, the bones of the loin long and broad, and the whole muscular system wide and thoroughly developed over the entire frame.

HEREFORDS.

PURITY OF BLOOD, as traced back to the satisfaction of the committees, to imported blood, *on both sides*, from some known English breeder, or as found in Eyton's Hereford Herd Book.

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3 THE HEAD—moderately small, with a good width of forehead, tapering to the muzzle; the cheek-bone rather deep, but clean in the jaw.

2 THE NOSE—light in its color, and the whole head free from fleshiness.

2 THE EYE—full, mild, and cheerful in its expression.

1 THE EAR—of medium size.

2 THE HORNS—light and tapering, long and spreading, with an outward and upward turn, giving a gay and lofty expression to the whole head.

2 THE NECK—of a medium length, full in its junction with the shoulders, spreading well over the shoulder points and tapering finely to the head.

14 THE CHEST—broad, round, and deep; its floor running well back of the elbows, which, with a springing fore-rib, gives great interior capacity to this all-important portion of the body.

4 THE BRISKET—*when in flesh*, largely developed, descending low between the legs, and deep, by covering the anterior portion of the sternum, or breast bone, but never interfering with the action of the animal when in working condition.

3 THE SHOULDER—lying snugly and closely in towards the top and spreading towards the points; the blade sloping somewhat back, and running pretty well up into the withers, which, by rising a very trifle above the level line of the back, gives to the ox a very upstanding and beautiful fore-end. The whole shoulder well clothed with muscle.

3 THE CROPS—filling all up evenly behind the shoulders, and blending them smoothly in with the muscles of the back.

8 THE BACK, LOIN and HIPS—should be broad, wide and level.

4 THE RUMPS—should lie nearly or quite level with the back, and their covering should be abundant, mellow, loose, and freely moving under the hand, thus showing great aptitude to fatten.

3 THE PELVIS—roomy; indicated by wide hips (as already mentioned), and the space between the rumps, which should stand well apart, giving a general breadth to the posterior portion of the animal.

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5 The Twist—broad and full, extending well down on each side of the thigh, with corresponding width—a broad twist as a good indication of a butcher's animal.

6 The Hind Quarters—large and thoroughly developed in its upper and more valuable portions, as beef. The thigh gradually tapering to the hock, but muscular.

3 The Carcass—round throughout; full and capacious, with the under line of the belly level, or nearly so.

3 The Flank—full and wide.

3 The Legs—straight, upright; firmly placed to support the superincumbent weight; a strong back sinew, but by no means a large coarse cannon bone.

3 The Plates—of the belly, strong, and thus preserving nearly a straight under line.

2 The Tail—large and full at its point of attachment, but fine in its cord.

3 The Carriage—prompt, resolute, and cheerful; and in the ox, gay and lively.

3 The Hair—thick, close and furry, and if accompanied with a long growth, and a disposition to curl moderately, is more in estimation, but that which has a harsh and wiry feel is objectionable.

2 The Udder—should be such as will afford the best promise of capacity and product.

1 Color—Reds or rich browns, oftentimes very dark, with a white or "brockled" face, are now the colors, and marking of the Herefords, though grey Herefords or cream-colored are not uncommon.

15 Quality—On this the thriftiness, the feeding properties, and the value of the animal depend; and upon the touch of this quality rests, in a good measure, the grazier's and the butcher's judgment. If the "touch" be good, some deficiency of form may be excused; but if it be hard and stiff, nothing can compensate for so unpromising a feature. In raising the skin from the body, between the thumb and finger, it should have a soft, flexible and substantial feel, and when beneath the outspread hand, it should move

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easily with it, and under it, as though resting on a soft, elastic, cellular substance; which, however, becomes
— firmer as the animal "ripens." A thin papery skin is
100 objectionable, more especially in a cold climate.

Points of the Hereford bull.

As regards the male animal, it is only necessary to remark, that the points desirable in the female are generally so in the male, but must, of course, be attended by that masculine character which is inseparable from a strong, vigorous constitution. Even a certain degree of coarseness is admissible, but then it must be so exclusively of a masculine description as never to be discovered in the females of his get.

In contra-distinction to the cows, the head of the bull may be shorter, the frontal bone broader, and the occipital flat and stronger, that it may receive and sustain the horn—and this latter may be excused if a little heavy at the base, so its upward form, its quality and color be right. Neither is the looseness of the skin, attached to, and depending from the under jaw, to be deemed other than a feature of the sex, *provided* it is not extended beyond the bone, but leaves the gullet and throat clean and free from dewlap.

The upper portion of the neck should be full and *muscular*, for it is an indication of strength, power and constitution. The spine should be strong, the bones of the loin long and broad, and the whole muscular system wide and thoroughly developed over the entire frame.

AYRSHIRES.

PURITY OF BLOOD—as traced back to importations of both dam and sire, under such evidence as will satisfy committees.

4 THE HEAD—as in other breeds, small; the face long and narrow; the muzzle and nose variable in color.

2 THE EYE—placid and not strikingly large.

4 THE EAR—of full size, and of an orange color within.

2 THE HORNS—small, tapering, with an outward and upward turn, and set on wide apart; the face somewhat dishing.

4 THE NECK—of medium length, clean in the throat, very light throughout, and tapering to the head.

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6 The Shoulders—lying snugly to the body, thin at their top, small at their points, not long in the blade, nor loaded with muscle.

12 The Chest—must retain sufficient width and roundness to insure constitution. The lightness of the fore-quarter, and the "wedge-shape" of the animal, from the hind-quarter forward, arising more from a small, flat and thin shoulder, than from any undue narrowness of the chest.

4 The Crops—easily blend in with so thin a shoulder and prevent all hollowness behind.

4 The Brisket—not over-loading the fore-end, but light.

8 The Back—should be straight, and the loin wide, the hips rather high and well spread.

4 The Pelvis—roomy, causing a good breadth at what is termed the "thurl," or "round-bone," and between the points of the rumps.

6 The Quarters—long, tolerably muscular, and full in their upper portion, but moulding into the thighs below, which should have a degree of flatness, affording thus more space for a full udder. The flank well let down, but not heavy.

8 The Ribs—behind, springing out *very* round and full, affording space for a large udder, which, by Ayrshire breeders, is considered very essential to secure the milking property; the whole carcass thus acquiring increased volume towards its posterior portion.

4 The Rumps—nearly level with the back, projecting but little.

1 The Tail—thin in its cord, of full length, light in its hair, and set somewhat further into the back than would be admissible with some other breeds.

3 The Legs—delicate and fine in the bone, inclining to be short, and well knit together at the joints.

12 The Udder—in this breed is of more especial importance, as the Ayrshires have been bred almost exclusively with reference to their milking properties. The great feature of the udder should be capacity, without being fleshy. It should be carried squarely and broadly forward, and show itself largely behind. As it rises upwards it should not mingle too immediately with the muscle of the thighs, but

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continue to preserve its own *peculiar* texture of skin—thin, delicate and ample in its folds. The teats should stand wide apart, and be lengthy, but not large and coarse.

6 THE HANDLING—will show the skin to be of medium thickness only, moving freely under the hand and evincing a readiness in the animal to take on flesh, when a drain on the constitution is no longer made by the milk-pail.

4 THE HAIR—soft and thick, in the phraseology of the country, woolly.

1 COLOR, VARIES—a dark red—a rich brown—a liver color, or mahogany, running into almost a black; those very much broken and spotty at the edges on a white ground are the favorite colors at the present time. The light yellow is, however, a color sometimes found on very good cows, but these pale colors are objected to from an impression that such belong to animals of less constitution.

1 CARRIAGE—should be light, active, and even gay; this latter
— appearance is much promoted by the upward turn of the
100 horn.

Points of the Ayrshire bull.

As regards the male animal, it is only necessary to remark, that the points desirable in the female are generally so in the male, but must, of course, be attended by that masculine character which is inseparable from a strong, vigorous constitution. Even a certain degree of coarseness is admissible, but then it must be so exclusively of a masculine description as never to be discovered in the females of his get.

In contra-distinction to the cows, the head of the bull may be shorter, the frontal bone broader, and the occipital flat and stronger, that it may receive and sustain the horn—and this latter may be excused if a little heavy at the base, so its upward form, its quality and color be right. Neither is the looseness of the skin, attached to, and depending from the under jaw, to be deemed other than a feature of the sex, *provided* it is not extended beyond the bone, but leaves the gullet and throat clean and free from dewlap.

The upper portion of the neck should be full and *muscular*, for it is an indication of strength, power and constitution. The spine should be strong, the bones of the loin long and broad, and the whole muscular system wide and thoroughly developed over the entire frame.

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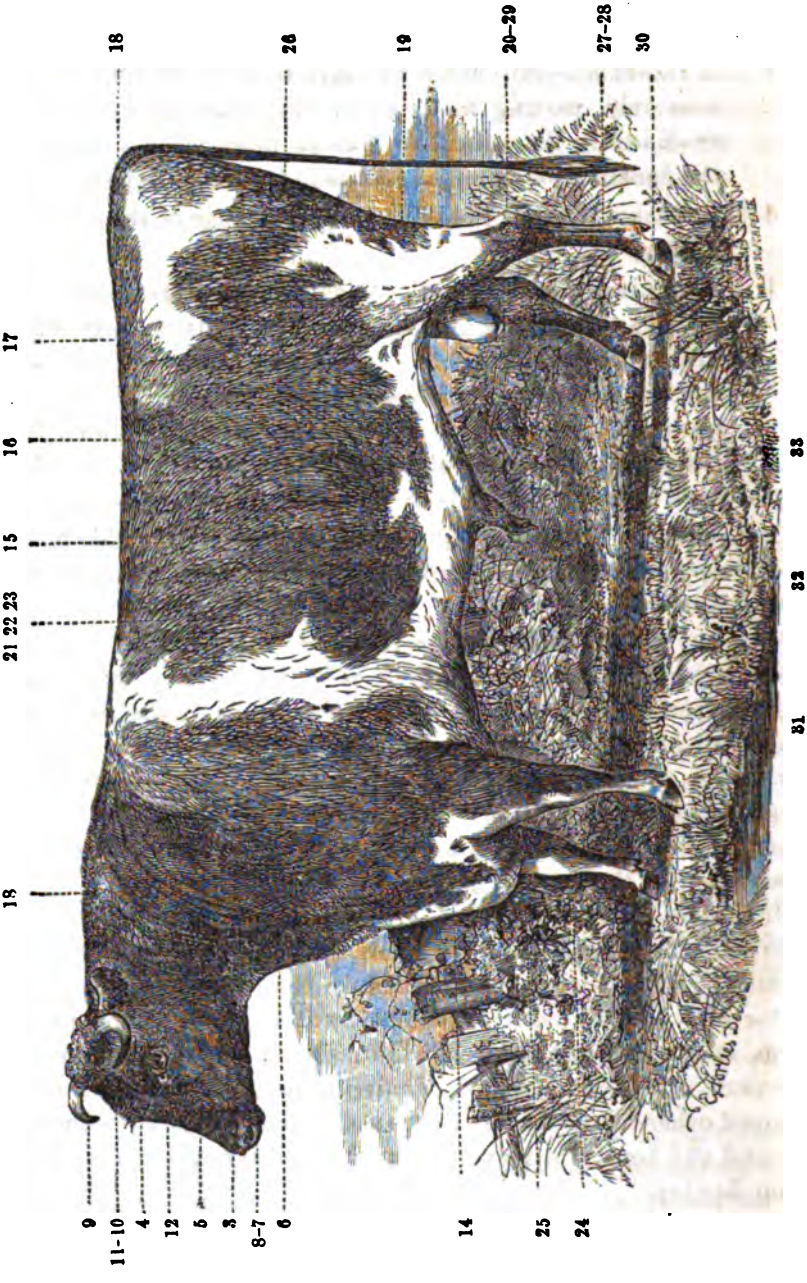

[Points of the Jersey Bull.]

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JERSEY.

In 1850, we gave the scale of points of the Jerseys, as adopted by the Royal Jersey Agricultural Society, for the government of the judges in all the shows of that Society.

The increased attention being given to this valuable breed of cattle for the dairy, will render this scale of points of interest to those interested in this breed. We give the cuts of the bull and cow, showing the application of the scale of points.

Those interested in this breed will find, in the Transactions of 1850, page 318, a full description of the original and improved Jersey cow, by Col. J. Le Couteur, of Bellevue, in the Island of Jersey.

Scale of points for bulls.

The following is the scale of points which guide the judges in awarding the premiums on cattle:

Article.	Points.
1. Pedigree on male side	1
2. Pedigree on female side	1
3. Head fine and tapering	1
4. Forehead broad	1
5. Cheek small	1
6. Throat clean	1
7. Muzzle fine and encircled with a light color	1
8. Nostrils high and open	1
9. Horns smooth, not too thick at the base, and tapering, tipped with black	1
10. Ears small and thin	1
11. Ears of a deep orange color within	1
12. Eye full and lively	1
13. Neck arched, powerful, but not too coarse and heavy	1
14. Chest broad and deep	1
15. Barrel-hooped, broad and deep	1
16. Well-ribbed home, having but little space between the last rib and the hip	1
17. Back straight from the withers to the top of the hip	1
18. Back straight from the top of the hips to the setting on of the tail; and the tail at right angles with the back,	1
19. Tail fine	1
20. Tail hanging down to the hocks	1
21. Hide mellow and moveable, but not too loose	1
22. Hide covered with fine and short hair	1
23. Hide of a good color	1
24. Fore legs short and straight	1
25. Fore-arm large and powerful, swelling and full above the knee, and fine below it	1

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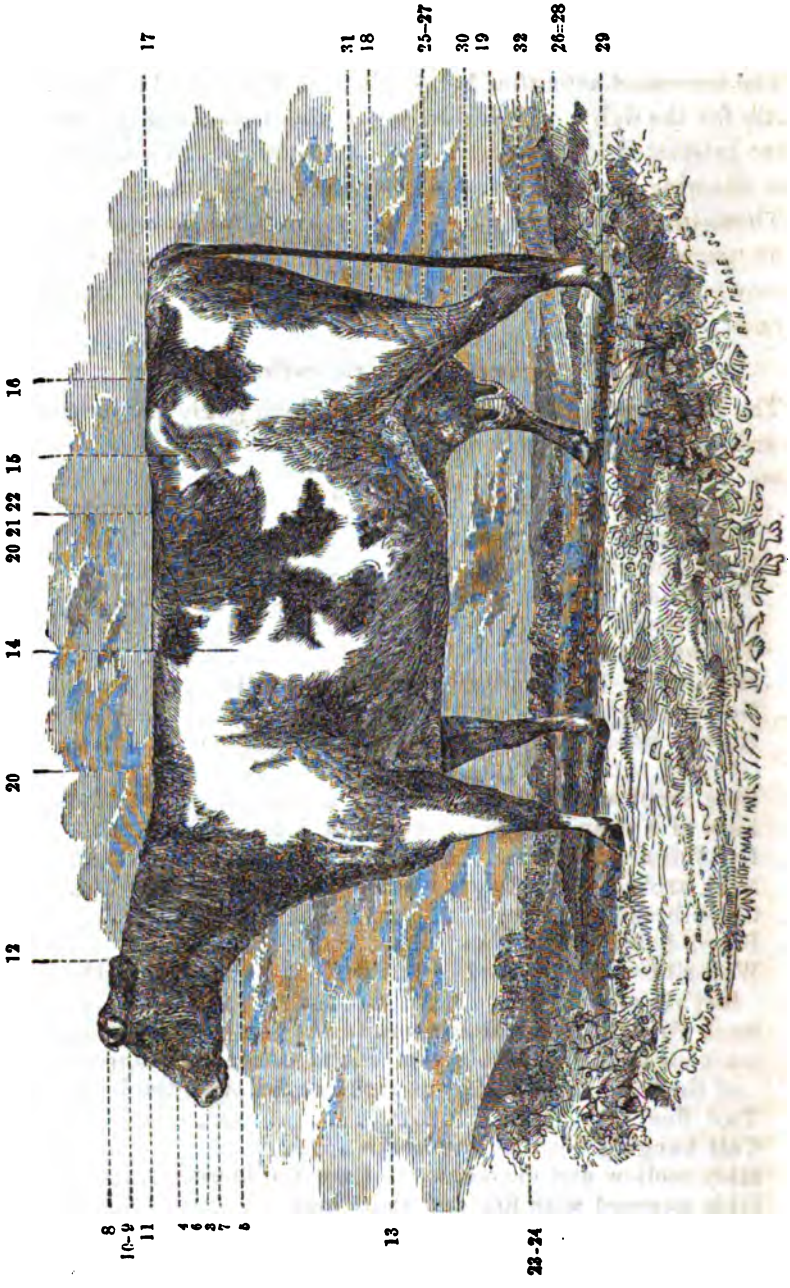

[Points of the Jersey Cow.]

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Article.	Points.
26. Hind-quarters, from the hock to the point of the rump, long and well filled up	1
27. Hind legs short and straight (below the hocks) and bones rather fine	1
28. Hind legs squarely placed, and not too close together when viewed from behind	1
29. Hind legs not to cross in walking	1
30. Hoofs small	1
31. Growth	1
32. General appearance	1
33. Condition	1
Perfection	33

No prize shall be awarded to a bull having less than 27 points.

Scale of points for cows and heifers.

Article.	Points.
1. Pedigree on male side	1
2. Pedigree on female side	1
3. Head small, fine and tapering	1
4. Cheek small	1
5. Throat clean	1
6. Muzzle fine and encircled with a light color	1
7. Nostrils high and open	1
8. Horns smooth, crumpled, not too thick at base, and tapering, tipped with black	1
9. Ears small and thin	1
10. Ears of a deep orange color within	1
11. Eye full and placid	1
12. Neck straight, fine, and lightly placed on the shoulders,	1
13. Chest broad and deep	1
14. Barrel-hooped, broad and deep	1
15. Well ribbed home, having but little space between the last rib and the hip	1
16. Back straight, from the withers to the top of the hip	1
17. Back straight, from the top of the hips to the setting on of the tail; and the tail at right angles with the back,	1
18. Tail fine	1
19. Tail hanging down to the hocks	1
20. Hide thin and moveable, but not too loose	1
21. Hide covered with fine and soft hair	1
22. Hide of a good color	1
23. Fore legs short, straight and fine	1
24. Fore-arm swelling and full above the knee, and fine below it	1
25. Hind-quarters, from the hock to the point of the rump, long and well filled up	1

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Article.	Points.
26. Hind legs short and straight (below the hocks) and bones rather fine	1
27. Hind legs squarely placed, not too close together when viewed from behind	1
28. Hind legs not to cross when walking	1
29. Hoofs small	1
30. Udder full in form, *i. e.*, well in line with the belly	1
31. Udder well up behind	1
32. Teats large and squarely placed, being wide apart	1
33. Milk-veins very prominent	1
34. Growth	1
35. General appearance	1
36. Condition	1
Perfection	36

Three points shall be deducted from the number required for perfection on heifers, as their udder and milk-veins cannot be fully developed. A heifer will therefore be considered perfect at thirty-three points.

No prize shall be awarded to cows, or heifers, having less than twenty-nine points.

STATE FAIR AT WATERTOWN, SEPTEMBER, 1861.

REPORT OF JUDGES ON NORTH DEVONS.

Your committee, to whom was assigned the duty of passing upon the relative merits of this most uniformly beautiful and decidedly interesting class or breed of animals, report:

That according to instructions they proceeded to examine them according to the scale of points adopted by your Society. In the pursuit of the examination your committee became deeply interested in thus being enabled to distinguish between the comparative merits of the nice points of fine animals. Notwithstanding there were several which were considered fine animals, exhibited, it will be perceived on examination that the two first premium bulls of mature age fell 34 numbers short of perfection; while the sweepstakes Devon, a yearling, was 21½ numbers short. And among the cows, the highest number reached was 85—15 short of perfection; while her next successful competitor fell but one number behind her. It was truly gratifying to your committee to find that the sweepstakes committee fully corroborated

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our figuring without any knowledge of the fact. Breeders may learn by examining the following figures wherein their animals fail, and by comparing with others of higher merit learn how and where they may improve them. To particularize: I perceive that among all the animals noted, I don't find one credited with a perfect nose, that highly important point, a rich orange color; and I don't recollect of but one on exhibition that was entitled to that credit, and that, I find by our record, is No. 22, Queen of May, a two year old heifer, belonging to A. B. Conger, Waldberg. As the chairman of your committee was called away to serve on another committee before the examination of two year old heifers, yearlings and calves, their points were not taken down.

It may be observed that there were several animals that were not accompanied by pedigrees sufficiently correct to justify your committee in receiving them in competition. They were, however, examined with the understanding that if at a future time they should produce satisfactory evidence of purity to your Secretary, they should be entitled to such award as should be given them. It may be observed that one of the mature bulls, whose pedigree was not accepted in the footing up of the points, numbers higher than his more successful competitors, but he is so wanting in size that your committee could not justly recommend him for a breeding animal. And here your committee would take the liberty to say to breeders, that they will do well to exercise great caution in their selection of male animals for breeding. It is not enough that they can show a long pedigree; if they do not possess the requisite qualities, on the principle that like produces like, to promise you what you desire to accomplish, reject them; and on this principle we feel justified in recommending that at least two-thirds or three-fourths of the bull calves be castrated. Thus, by a careful and systematic course of breeding, the Devon breeders may challenge the world to produce another race of cattle, of as uniform character and beauty, and combining in as great a degree the more useful and desirable qualities.

B. H. ANDREWS, *Connecticut*,
WILLIAM JOHNSON, *Geneva*,
D. W. C. DE FOREST, *Defreestville*,
Committee.

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Scale of Points of North Devons, adopted by New York State Agricultural Society, to be used in judging animals for award of premiums.

DEVON BULLS.

	Three years old and upwards.					Two years old and under.		
No. of the animal	....	127	203	259	124	2 yrs. 40	1 yr. 41	1 yr. 25
Pedigree	Maximum.	Approved.	Not approved.	Approved.	Not approved.	Approved.	Recommended for 3d premium, if satisfactory pedigree be produced.	Approved.
The head	4	2	3	1	0	4		3
The nose	4	0	1	0	0	4		3
The eye	4	2	1	1	0	4		4
The ear	2	0	2	2	1	2		2
The horns	2	2	2	2	2	2		2
The neck	2	1	2	2	1	2		2
The chest	14	10	13	12	12	13		10
The brisket	4	3	3	2	3	4		4
The shoulder	4	4	3	4	2	4		2
The crops	3	3	3	3	1	3		3
Back, loins and hips	9	6	7	8	6	6		6
The rumps	5	3	5	4	4	3		3
The pelvis	2	----	----	----	----	----		----
The twist	3	3	3	2	2	3		3
The quarters	6	3	5	5	2	4		6
The flanks	3	3	2	1	2	2		3
The legs	5	5	5	4	3	5		4
The carcass	2	1	1	1	½	1½		1½
The tail	1	1	1	½	½	1		1
The color	1	1	1	1	½	1		1
The hair	1	1	1	½	1	----		1
The udder	1	----	----	----	----	----		----
The carriage	3	2	2	2	3	1		2
The quality	15	10	9	8	10	8		12
	100	66	75	66	56½	77½		78½

Entry. DEVON BULLS—*Three years old.*

No. 127. 1st premium, "Elgin," January 15, 1858. Geo. Short, Madrid, St. Lawrence county. Bred by exhibitor.

No. 259. 2d premium; April 29, 1857. R. Goulding, Pamelia Four Corners, Jefferson county.

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Entry.

No. 203. 3d premium, "Yankee Blade," June, 1858. N. T. Ferriman, Woodville, Jefferson Co. Pedigree imperfect.

Two years old.

No. 40. 1st premium; George Webb, Watertown.

One year old.

No. 25. 1st premium, "Frank Quartly." A. B. Conger, Waldberg, N. Y.

No. 41. 3d premium, "Red Jacket," calved April 25, 1860; "if pedigree be produced." Bred by George Webb, of Watertown.

No. 124. "Plato," 5 years old, May, 1856. Pedigree imperfect.

DEVON COWS.—*Pedigree approved.*

	Maximum.	Three years old and upwards.								Two years old.	
No. of entry.	...	44	90*	126	266†	44	21‡	267§	265	43	42
Head	4	4	2	1	2	3	4	4	2	2	4
Nose	4	2	3	3	1	3	3	3	1	3	3
Eye	4	2	2	1	3	2	3	3	2	2	4
Ear	2	1	1	½	1	2	2	1	1	1	1½
Horns	2	1	½	2	2	2	2	1	2	2	2
Neck	2	1	2	1½	2	1	2	2	1½	1	1½
Chest	14	10	12	11	14	8	12	13	14	12	12
Brisket	4	2	0	2	3	2	4	4	2	2	2
Shoulder	4	2	3	3	2½	2	3	4	3	4	4
Crops	3	1	2	1	3	1	2	3	3	2	2
Back, loins, hips	9	5	9	4	8	6	9	8	7	7	5
Rumps	5	4	4	3	5	3	4	3	3½	4	4
Pelvis	2	2	2	1	2	2	2	2	2	2	1
Twist	3	2	2	1½	3	2	2	2	2	3	3
Quarters	6	4	5	3	6	4	4	4	5	4	4
Flanks	3	1½	2	1½	3	1½	1½	2	2	1½	1
Legs	5	4	4	2½	4	4	3	4	4	4	5
Carcass	2	1	2	1	2	1	2	2	2	1½	2
Tail	1	1	1	½	1	1	1	1	½	1	1
Color	1	1	1	½	1	1	1	1	0	1	1
Hair	1	½	1	1	1	1	1	1	0	1	1
Udder	1	1	½	½	½	1	½	1	1	½	1
Carriage	3	3	3	2	3	2	2	3	3	3	3
Quality	15	12	13	9	12	13	12	12	12	13	10
	100	69	78	57	85	68½	82	84	75	77½	78

* Premium equal to the 3d premium recommended.
† First premium.
‡ Third premium.
§ Second premium.

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The scale of points was not carried out, as regards animals numbered 22 and 268, two years old, and numbers 48, 46, 253 and 270, one year old.

We, the undersigned, committee appointed to examine Devon cows, three years old and upwards, heifers and calves, exhibited September 19, 1861, unanimously concurred in making the foregoing statement upon the specified points of the animals thus exhibited; and take pleasure in adding that the cow of George Webb, entry No. 44, was first examined by Messrs. Andrews and Johnson, in the absence of Mr. De Forest, and *afterwards*, without *their* discovering it to be the same, was re-examined *with* Mr. De Forest, and a difference of only *half* a point was then made.

Done at WATERTOWN, *Sept.* 19, 1861.

B. H. ANDREWS, *Ct.*,
WM. JOHNSON, *New York*,
D. W. C. DE FOREST, *New York*,
Committee.

Three, two, and one year old Steers.

The committee on three, two, and one year old steers would respectfully report that the competition in this class was very spirited, and will compare favorably with any exhibition in years past. For close matching, good training, and docility, all were entitled to great credit; in fact, your committee found it somewhat difficult to decide upon the relative merits of the different competitors. Your committee, in making their awards, were governed more by the close matching and fine handling of the animals, than by their weight and size, believing that the aim of good breeders is to secure all those qualities that add to the value of the animal, not only for the yoke but the shamble. We would add that the farmers of Jefferson county have occasion to congratulate themselves upon the fine exhibition in the above class, as there was no competition from any other county.

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NEW YORK STATE AGRICULTURAL ROOMS,
ALBANY, *October* 7, 1861.

EXTRACTS FROM THE REPORT OF THE COMMITTEE ON GRADE CATTLE AND MILCH COWS, MADE AT THE STATE FAIR, HELD AT WATERTOWN, SEPTEMBER, 1861.

MILCH COWS OF ANY BREED.

Entry.		
No. 196.	Best milch cow, Brodie, Campbell & Co., Ellisburgh and New York Mills.....Dip. and	$15 00
No. 197.	2d best milch cow, Brodie, Campbell & Co., Ellisburgh and New York Mills	10 00

The two imported Ayrshire cows exhibited by Messrs. Brodie, Campbell & Co., gave evidence of deep milking qualities, that makes them an important acquisition to a dairying district and worthy of liberal awards. Mr. Brodie has qualified to the annexed statement, and we, the undersigned committee, award the first premium to No. 196, "Red Rose;" and the second premium to No. 197, "Ayrshire Lass."

A. L. FISH,
JAMES THOMPSON,
A. B. BENHAM,
Committee.

STATEMENT AS TO THE QUANTITY OF MILK.

"Red Rose" was calved May 10th, 1853; imported in 1854; calved May 20th, 1861.

1861.		Lbs. of milk.
June 10.	Gave.....	84
Aug. 1.	Gave.....	74
2.	Gave.....	74
3.	Gave.....	75
4.	Gave.....	73
5.	Gave.....	73½
6.	Gave.....	72
7.	Gave.....	73¼
8.	Gave.....	73
9.	Gave.....	72
10.	Gave.....	72½
11.	Gave.....	72¼
12.	Gave.....	72
13.	Gave.....	71½
14.	Gave.....	71

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1861.		Lbs. of milk.
Aug. 15.	Gave	71¾
16.	Gave	71
17.	Gave	70
18.	Gave	70
19.	Gave	69
20.	Gave	69½
21.	Gave	69
22.	Gave	68
23.	Gave	68¾
24.	Gave	67½
25.	Gave	67
26.	Gave	66
27.	Gave	65
28.	Gave	65½
29.	Gave	64
30.	Gave	64
31.	Gave	63
Sept. 1.	Gave	62
2.	Gave	61
3.	Gave	60½
4.	Gave	59
5.	Gave	58
6.	Gave	57½
7.	Gave	57
8.	Gave	56½
9.	Gave	55
10.	Gave	54½
11.	Gave	54
12.	Gave	52
13.	Gave	51½
14.	Gave	50

(Signed JAMES BRODIE.

Sworn before me, this 19th day of September, 1861,

FRED. EMERSON, *Justice Peace.*

"Ayrshire Lass" was calved May 14th, 1850; imported in 1853; calved April 1st, 1861.

1861.		Lbs. of milk.
June 10.	Gave	74
Aug. 1.	Gave	66

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1861.		Lbs. of milk.
Aug.	2. Gave	66
	3. Gave	65¼
	4. Gave	65½
	5. Gave	64¾
	6. Gave	65
	7. Gave	65
	8. Gave	64¾
	9. Gave	64¼
	10. Gave	63
	11. Gave	63¼
	12. Gave	63
	13. Gave	62¾
	14. Gave	62½
	15. Gave	62
	16. Gave	62½
	17. Gave	61
	18. Gave	61¼
	19. Gave	61
	20. Gave	60
	21. Gave	60½
	22. Gave	60¼
	23. Gave	59
	24. Gave	58
	25. Gave	58½
	26. Gave	58½
	27. Gave	57
	28. Gave	56
	29. Gave	55½
	30. Gave	55
	31. Gave	55
Sept.	1. Gave	55½
	2. Gave	54¾
	3. Gave	54½
	4. Gave	54
	5. Gave	53
	6. Gave	54
	7. Gave	53½
	8. Gave	52
	9. Gave	52¾
	10. Gave	52

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1861.		Lbs. of milk.
Sept. 11.	Gave	53
12.	Gave	52½
13.	Gave	51
14.	Gave	50
15.	Gave	50½
16.	Gave	51
17.	Gave	26 morning's milk.

(Signed) JAMES BRODIE.

Sworn before me, this 19th day of September, 1861,

FRED. EMERSON, *Justice Peace.*

HORSES.

The committee appointed to adjudge the premiums offered by the New York State Agricultural Society, at their annual fair at Watertown, September 18, 1861, in class No. 2, Nos. 20, 21 and 22, beg leave to submit the following report:

In No. 20, the show was a fine one, and they would compliment all the exhibitors therein, although but a portion of the horses entered came before them. They would award, for the stallions, the first premium to Mr. E. Corning, Jr., of Albany, for his horse "C. M. Clay;" the second premium to Mr. L. Jacobs, of Watertown; the third to Mr. W. S. Heustis, of Adams.

For mares, the first premium to Mr. F. Stearns, of Ellisburgh; the second to Mr. J. P. Wilson, of Watertown; the third to Mr. C. H. Bannister, of Watertown; the fourth to Mr. C. L. Rew, of Watertown.

In No. 21, the show of young stallions was very fine. Among them, the "Texan Jim," of Mr. Jacob Brown, of Fayette, seemed to your committee the best; the "Abe Lincoln," of Mr. Lovell Clark, of Rutland, the second in merit; and the "Andrew Jackson," of Mr. Charles Simmons, of Watertown, the third. Among the mares, in this number, that of Mr. Giles Parker, of Adams Centre, seemed the best; that of Mr. S. Gifford, of Watertown, the second; and that of Mr. J. P. Wilson, of Watertown, the third.

In No. 22, only three horses were exhibited—two stallions and one mare. Your committee hardly felt themselves justified in awarding any first prize. Mr. W. P. Ball, of Rutland, fairly

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won the second premium, and Mr. C. E. McCormick, of Whiteville, the third. Mr. Harley Parker, of Troy, merits the second premium for his mare.

In examining these young horses, your committee endeavored to judge them by what they promised to be in the course of two or three years more of age, and secondly, by their adaptation to agricultural purposes. Of farm horses proper, but one or two were exhibited, and these were too coarse and unsymmetrical in form to recommend themselves in competition with such as seemed to be horses of all work and good roadsters.

The size of the colts seemed small, and your committee would beg leave to suggest the propriety of breeding with greater regard to size and bone. They fully believe in the advantage of careful breeding for the farm as well as the road, and the gain by the proper infusion of blood into our farm stock.

All of which is respectfully submitted.

W. P. PRENTICE,
JOHN BUTTERFIELD, JR.,
RUFUS WHITE,
Committee.

WATERTOWN, *September* 18, 1861.

DUANE'S SOD-SEEDER AND BROADCAST SOWING MACHINE.

The committee on plowing found on exhibition this machine (a description of which is annexed), which did its work admirably, when tested under quite unfavorable circumstances—sowing the seed, covering and rolling it at the same time, with a draft of 400 lbs., as tested by the dynamometer. We recommend to the inventor and exhibitor, J. B. Duane, of Schenectady, a *Diploma* and *Silver Medal.*

WATERTOWN, *September* 18, 1861.

The committee on implements, submit the following report on John B. Duane's Sod-Seeder and Broadcast Sowing Machine:

The committee to whom was referred the newly invented implement for putting in crops, entered as a Sod-Seeder and Broadcast Sowing Machine, by John B. Duane, of the city of

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Schenectady, report the following facts to the Executive Committee of the New York State Agricultural Society:

The said implement was put in operation at the plow grounds of the Society this day. A sufficient quantity of ground was plowed, by order of the Society, to test this instrument, and others, if presented. We wish to state the fact that the ground was in an unfortunate condition for a fair trial of implements, as the soil was a hard baked clay, and broken into lumps. The inventor of the implement having full confidence in its working properties, entered on its trial, and the result seemed to justify it. The machine proposes to cultivate the ground, by a new form of cultivator tooth; to sow any kind of grain; to cultivate or drag the seed in, at the option of the farmer, by simply turning a guide-board, or to do both combined; to sow clover and timothy seed; to roll the ground, and to sow the plaster, or any of the concentrated manures, all at one time, by once passing over the ground, and with one pair of horses, and but one attendant or driver, who rides behind the implement.

The seed selected was *oats*, one of the most difficult seeds for machine sowing. After witnessing the operation of the machine for a sufficient length of time to satisfy us, we came to the following conclusion: That notwithstanding the condition of the ground it accomplished all the objects proposed for it, in the most successful manner; that is to say, the grain was perfectly covered, the ground over which it passed was thoroughly pulverized by the cultivator, a fine toothed drag, and the roller. The plaster was distributed behind the roller in free flow—the seed flowing down an inclined vibrating apron, always in sight, and apparently free from choking. The draft was tested by the dynamometer, and was found to be about an average of four hundred pounds. This ease of draft seems to depend, in a machine accomplishing so much, on two or three important considerations, viz., the cultivator teeth, which are knife edged and gradually lift the ground, not packing it forward, as with the ordinary cultivator teeth; to the peculiar form of the drag teeth, and more essentially to its being balanced as evenly as possible on a central roller, leaving no work or bearing for the forward or castor-wheels to do, except for regulating the depth and easy turning of the machine, which turns as easy as a cart.

In conclusion, we think the machine eminently practical as a new implement in farming, and recommend it to the consideration

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of the Executive Committee as an advanced step in labor-saving implements.

All of which is respectfully submitted.

M. E. REMINGTON,
JAMES PARKER,
JOHN ADAMS,
Committee on the Trial of Implements.

SOD-SEEDER AND BROADCAST SOWING MACHINE.

This new and labor-saving instrument is now offered to the public. Its points are:

1. It cultivates the ground after spring or fall plowing.

2. It sows the seed, either throwing it under the cultivator teeth, and plowing it in, for peas, &c., or, by simply turning a guide-board, it passes directly under the drag, and sows it at equal depths near the surface.

3. It covers the seed by a fine-toothed drag, which does not allow any lump to pass, larger than one-inch square.

4. It sows the clover and timothy seed in separate compartments.

5. It rolls the ground, preparing it for the mower.

6. It sows the plaster, guano, phosphates, &c., in the most even manner, without the possibility of choking or any annoyance from their dust.

7. It clears itself from all obstructions.

8. The team always being in advance, the ground never is poached with the horses feet.

9. The seeds and plaster can be sown in a gale of wind.

10. The farmer has no labor to perform except that of driving, and filling up the seed boxes.

11. It is easy of draft; by dynamometer test it requires but fifty pounds to draw it on the floor; 120 pounds on the road, and on average soils less than 500 pounds when in full work.

12. By the turn of a thumb-screw the quantity of any kind of seed can be regulated at pleasure, seeding from one peck to five bushels to the acre.

13. By a peculiar construction of the cultivator and drag-teeth, an inverted sod can be cultivated, without disturbing it, which, when pressed under, is estimated to be equal to twelve tons of manure to the acre.

14. The farmer can sow until the storm actually comes on.

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15. The combined weight of the whole machine is only sufficient to crush the clods that it may pass over.

NOTE.—This machine was patented April 12, 1859, and October 2, 1860. After putting in one of the finest crops of oats in the county in the spring of 1860, and rye in the fall, it received a Diploma at the Albany County Fair, and the large Silver Medal at the State Fair at Elmira, and was ordered to be noticed and described in the next volume of the State Agricultural Transactions.

Description of the machine and its operation.

The principle upon which the machine depends for its ease of draft, and enables one pair of horses to operate it, consists in having its whole weight, like Fawks' Steam Plow, balanced upon the broad surface of the roller, which is only heavy enough to crush the clods of earth and prepare the ground for the mower. The cultivator teeth loosen the ground, and by their peculiar curved form pass over every obstacle. The drag having four rows of teeth, which, if placed in line, would be but one inch apart, leaves the ground in the condition of a garden. The roller completes the operation of tilling the earth, and is followed by the plaster machine, which has both a rotary and a horizontal movement, which renders it impossible to choke.

Calculation of the labor-saving properties of the machine.

One acre of ground is 160 rods, or one-half mile long, and 16½ feet, or one rod wide.

Man and team travel,

	Miles.
To cultivate an acre in the ordinary mode and with the ordinary implements, a cultivator 5½ feet wide makes three bouts, or	1½
To drag 5½ feet wide, passing over twice	3
To roll 8 feet wide	1
To drag in grain, if lapped or passed twice over	3
To brush or drag in grass seeds, do do	3
	11½

In addition to which the man travels,

To sow grain 8 feet wide, with heavy bag on shoulder	1
To sow plaster 8 feet wide	1
To sow grass seeds 8 feet wide	1
Making a total of	14½

Team travels 11½ miles; man 14½.

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To put in an acre with the machine four feet wide, in the most perfect manner, the farmer has, in addition to the other advantages, no labor to perform but driving, and the team travels but $2\frac{1}{12}$ miles; with a six foot machine one and two-fifths of a mile. So, if the team can travel 18 miles a day, the farmer can put in $8\frac{1}{4}$ acres per day; with a six foot machine and three horses $13\frac{1}{3}$ acres can be accomplished.

Communications in relation to the sale of State and county rights for manufacturing, vending, &c., may be addressed to the subscriber, at the city of Schenectady, State of New York.

April 12, 1861. JOHN B. DUANE.

CLASS 4, COMMITTEE No. 44.

To the Hon. President and Executive Committee of the New York State Agricultural Society:

The undersigned committee have the honor to report that they have endeavored to execute the duty entrusted them with care, caution and impartiality. They found a number of very worthy articles, some of which were not contained in your catalogues. The competition in some branches was spirited, and contested with great zeal. Your committee have to report in general an improvement in this department over former exhibitions, and in order to encourage additional improvements, have transcended their authority, and recommended to your favorable consideration, in addition to articles enumerated in regular premium list, the following: To D. W. Seely, for Scientific Churn, the committee recommend a large Silver Medal. This churn was put to test, and made butter in one minute and fifty seconds, from fresh milk. It operates on a new principle, and the committee, after careful examination, think it worthy of especial mention.

The committee also recommend a medal to L. Eames, for his automatic grain metre. This is an ingenious, simple arrangement for measuring grain, and weighs with the greatest accuracy. It was tested with the best results, and the committee think it entitled as above. They also recommend a medal to E. F. Hotchkiss, for a simple arrangement for working butter. It seems to answer the purpose admirably, and is on an entirely new principle. The committee also recommend such award of Diplomas, Transactions, &c., as are named in the annexed entries. They cannot conclude this desultory report without mentioning espe-

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cially courtesies extended them by the officers under your charge, and also to note that there were several articles that properly belonged to their department, entitled to premiums, that were in other classes. The Corn Harvester of Mr. Johnson, from Buffalo, this State, as well as an ingenious implement for husking corn, were both worthy of especial mention.

All of which is respectfully submitted.

J. T. F. WRIGHT,
HIRAM WALKER,
HENRY KEELER,
Committee.

CLASS 4, COMMITTEE No. 45.

The committee in Class 4, No. 45, respectfully report:

That we have examined, with all practicable care, the articles entered on the books given us in charge, and with pleasure announce that the exhibition in this department has been highly creditable to those entering the same, showing constant progress in excellence of material and construction.

Trials of machinery and implements are more essential to the development of true merit than in most other departments of our annual fairs; and if exhibitors feel aggrieved that we have failed to award many premiums offered by the Society, it is not condemnatory of the articles exhibited, but because we cannot know by actual and thorough test what the true or comparative merit of the machine or implement is.

Hoping that another year the Society may have the means and facilities to bring out the true qualities of the leading instruments connected with this department, and award by facts and not by guess-work or theories, we throw upon the committee or committees then selected the duties we might now be expected to assume.

September 20, 1861.

HENRY RUTTAN,
JOSEPH E. HOLMES,
E. D. WOOD,
Committee.

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P. GRODJINSKI, INVENTOR OF IMITATION CORAL BEADS, BRACELETS, NECKLACES AND PERFUMED BEADS, 177 ATLANTIC STREET, BROOKLYN, N. Y.

To the Executive Committee of the N. Y. State Ag. Society:

The special committee appointed to examine the collection of "imitation coral beads, bracelets, necklaces and perfumed beads," exhibited by P. Grodjinski, respectfully report:

That we have performed the duty assigned us with as much care as possible, without witnessing the process of manufacturing those articles.

Works of art, whether confined exclusively to agriculture proper or to the broader sphere of mechanics, are entitled to the favorable consideration and notice of this Society, since, so long as the mere ornamental finds favor with the human family, we cannot with fairness confine our observations to inventions of utility alone. The inventive genius of the exhibitor of these articles, and who is also the manufacturer, has displayed no common degree of skill in imparting elasticity to his bracelets, so as to fit them at once for any sized arm, while the beauty and style of all his articles on exhibition, show him to be a workman of no ordinary ability, and all entitling him to the discretionary premium of one of the Society's Diplomas.

All which is respectfully submitted.

J. A. COREY,
E. CORNELL,
Special Committee.

STATEMENTS ON BUTTER.

LYDIA A. GRAVES, WATERTOWN, UNDER 16 YEARS OF AGE.
First premium.

This jar of butter, No. 75, was made the first week in June last, from the milk of eleven cows; the milk was strained into eight-quart pans, and stood until soured, but not thick; then skimmed, and the cream kept in a stone jar until enough was obtained for a churning. The butter was washed till free from milk, and salted with Ashton salt, seven-eighths of an ounce to the pound; allowed to stand twenty-four hours, and worked again, and packed, covered with cloth, and salt and brine made of salt and saltpetre.

LYDIA A. GRAVES,
Under 16 years of age.

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ANNETTE CHAPMAN, 18 YEARS OF AGE.

Second premium.

This "statement" accompanied a sample of "ten pounds of butter, made by a girl under 21 years of age," which sample was manufactured September 16, as follows: Cream taken from *sweet* milk, in tin pans containing about four quarts each, and immediately churned; when gathered, milk drawn off, and butter rinsed with well water, by churning about one minute; butter removed to worker, rinsed with cold water while using the lever to work out the milk; as soon as the presence of milk disappears (which is usually within five minutes from the commencement of working), the water is expelled by continuing the use of the lever. The butter, thus freed, is weighed, and three-fourths of an ounce of Ashton salt to a pound of butter is added and "worked in" by use of lever, which requires not more than three minutes of time to accomplish in an amount not exceeding that contained in the sample herewith exhibited. The butter is not, nor never should be worked until the salt is *dissolved* and escapes in brine, and the *grain* of the butter destroyed. The butter, thus made, and worked *once only*, is immediately packed.

I certify the above statement to be true.

ANNETTE CHAPMAN.

LORAINE, *September* 16, 1861.

The dairy girl, maker of the sample, is 18 years old only—this fact I *know*. I write her statement at her request.

A. P. SIGOURNEY.

EDWIN WOOLWORTH, TURIN, LEWIS COUNTY.

First premium.

1. The 25 lb. package was made the last week in June, from 21 cows.

2. Treatment of cream and milk before churning is as follows: The milk is set in tin pans on a rack in the cellar in warm weather; in cold weather, in a room above the cellar. I skim the milk in hot weather as soon as it thickens; in cold weather as soon as the cream is sufficiently raised, in from two to two and a half days; churn with a crank churn by horse power; the churn stands in the cellar in hot weather. The cream is kept in a tin can, and hung in a well in hot weather; churn every day, or every other day—depends upon the weather. The milk separated from the butter, after drawing off, by rinsing in the churn in cold

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hard water—in two waters, if there are no white caps; if there are any, rinse until they are out. It is then salted with Ashton salt, thoroughly incorporated with the butter, at the rate of one ounce per pound. No other substance used. Set it in the cellar next morning, slightly worked and packed. During spring and fall churn in the morning, pack in the evening, cover it with a cloth wet with strong brine, then with salt, to keep out the air. The tub is prepared by putting one pail of boiling water in, and letting it stand until it is cold; then fill the tub with brine, letting it stand and soak three days, then rinse it out and rub with salt.

. TURIN, *September* 16, 1861.

EDWIN WOOLWORTH.

"ONONDAGA FACTORY-FILLED DAIRY SALT."

To the Executive Committee of the N. Y. State Ag. Society:

In the latter part of the month of August last, I received notice from the Secretary of the Society, B. P. Johnson, Esq., that I was appointed a committee on behalf of the Society to report upon the Onondaga Factory-filled Dairy Salt, manufactured by the Salt Company of Onondaga. The nature of the duty to be performed was not specifically mentioned, but I presumed it to include a general report upon the manufacture of the salt; the advantages arising, if any, from new methods lately introduced, together with analyses of the salt, and a comparison of it with the best commercial articles used for a similar purpose.

The good or bad quality of the salt produced at the Onondaga works, is not a matter merely of company or private interest; it is of great importance to the State at large, and especially are agriculturists and dairymen interested in it. The magnitude of the interests involved, cannot indeed be well over-estimated, nor can the manufacture be subjected to a too careful scrutiny, nor the product be too carefully examined. I regret that limited time, and that other duties have prevented me from giving that attention to the subject which its importance deserves. I hope that my investigations hereafter may be rendered more complete, and that at another time a more full report may be made.

The total amount of dairy salt annually used in this State is probably about one million bushels. How much of this has been

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produced on the Onondaga Reservation? From the most reliable data I can obtain, I believe that not more than ten per cent of New York salt is used in the New York dairies. This mortifying fact well deserves to be considered; the causes of it need to be ascertained, and if possible removed.

There is no doubt but that more or less dairy salt of the first quality has been made on the Onondaga Reservation for many years, but there having been numerous manufacturers, employing various methods and exercising various degrees of care and skill, they have produced a great variety and a want of uniformity in the article; the same effect has also been increased from the competition necessarily arising among the manufacturers, inducing, in the desire for cheapness, carelessness and a want of thoroughness in the manufacture. The brand of the inspector was no certain criterion of excellence, and hence of necessity the public confidence was not gained; the majority of consumers preferring to pay a higher price for a reliable article, than to purchase at a low rate that which might at one time be good and at another bad. Another cause that must be mentioned is the prejudice that exists against the Onondaga salt. Many dairymen believe it to be impossible to make good butter with it. To those unprejudiced, who have taken pains to inform themselves in the matter, it is not necessary to say that the idea is fallacious; many can testify to the fact of having made the best butter with the salt of which we are speaking. It must also be stated that this prejudice has been fostered, if it has not arisen, to a considerable extent, from dealers in dairy products, who, furnishing foreign salt, will only contract with those who use the article they deem the best and can supply, as the Ashton or Marshall salt.

The consolidation of the salt manufacturers on the Reservation, two years since, into the "Salt Company of Onondaga," has placed it in the power of the latter to remove the prejudices (from whatever cause produced) that exist against the salt. There is no doubt but that the best of salt can be made from the New York brine, and it is for the company to decide whether they have the will, and will employ the skill necessary to produce a good article of uniform quality, which the dairyman may rely upon the next month and the next year as well as this.

Deeming it desirable to make a personal inspection of the manufacture and processes adopted, before reporting on this committee, I visited Syracuse, and spent considerable time in

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critically examining the "works." The gentlemen connected with the various departments, afforded me every facility to gain information concerning the manufacture and the precise means employed in treating the brine, preparing the salt, and purifying it from those ingredients found in many varieties of commercial salt, and which are deemed injurious.

It will not be necessary, nor have I the time to describe at length the general manufacture of the salt. There are, however, certain points which particularly deserve attention, and—

1st. Is the separation from the brine, of the oxide of iron which it contains, in small proportion. The means now adopted are such, that the oxide is rapidly and perfectly precipitated, and without the brine becoming contaminated by foreign matters prejudicial to the salt, as often happens when lime and certain other substances are used for the same purpose.

2d. The general treatment of the brine, after passing into the kettles, is that adopted for a considerable time in the works, and which experience has shown to be best fitted for securing the removal of the larger proportion of the sulphate of lime, &c., and the formation of the salt in a moderately fine, firm grain.

3d. The chief point which engaged my attention, in the manufacture of the "Factory-filled Dairy Salt," was the means used for purifying and removing from it certain deleterious ingredients, especially the chlorid of calcium and the chlorid of magnesium.

The presence of these substances in salt causes it to absorb and retain moisture, and is considered by most practical men to exert a deleterious effect upon articles preserved by it, especially butter. Hence, other things being equal, it is generally considered that the absence of these impurities is of great importance in dairy salt. I am pleased to say that the process lately adopted at the Onondaga Salt Works, by which these noxious chlorids are attempted to be removed, is a most happy application of well known chemical principles, and completely effects the purpose for which it was intended. A careful analysis of different specimens of this salt has satisfied me that they do not contain any of either the chlorid of calcium or the chlorid of magnesium.

It is advisable to consider, in this connection, the question, How far are the means adopted likely to secure a uniform article? It is evident that this question is of the greatest importance, and

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that, unless it can be answered in the affirmative, the public confidence cannot be gained, or if gained, is not likely to be long continued. It appears to me that the process is of such a character that, with ordinary care, a uniform article must be produced, for, depending as it does upon unchangeable chemical laws, the conditions being always the same, it may be reduced, as indeed it already has been, to a routine which ordinary workmen, after a little experience, may perfectly and readily perform.

4th. There is another point to be referred to, to which, in my opinion, sufficient attention is not generally paid, i. e., the mechanical condition of salt. By a mere chemical analysis, one cannot certainly judge of the value of a given specimen of salt for a specific purpose; much depends upon its state of aggregation, as the size of its crystals or particles, their degree of compactness and hardness. This point is so evident that it is not necessary to dwell upon it. Common observation and experience have shown that the larger crystals are most proper for use in packing meats, &c., which, gradually dissolving as the fluids of the meat are poured out, keep the brine fully saturated. These considerations are evidence that a chemical analysis alone may not unlikely mislead us, in determining the value of a salt, and at least partially account for the fact that salts having the same, or nearly the same chemical composition, but differing in the condition and appearance of their particles, are not equally esteemed by practical men of good judgment and large experience. A chalky or a very fine grained, or pulverulent salt, is not the best for dairy purposes, and would at once be rejected, I believe, by experienced dairymen. A good dairy salt ought, I imagine, besides being of proper chemical composition, to be of moderately fine grain, crystalline and transparent, and when seen in mass, of a pure white color; it ought to be free from odor, and possess that sharp and pungent taste characteristic of pure salt. Its solution ought to be colorless and free from either scum or sediment. The "Onondaga Factory-filled Dairy Salt" possesses, in a high degree, nearly all of these properties, and all of them, so far as I have been able to judge, as fully as the most esteemed varieties of foreign salt found in our markets.

5th. The chemical composition of the salt next demands our attention. In order that the specimens examined might, as perfectly as possible, represent the salt as used by consumers, I took specimens from the bins and bags at the factory, and procured

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others from that on sale by the agent in Albany. The following are the results obtained:

Analyses of Onondaga Factory-filled Dairy Salt.

	No. 1.	No. 2.
Chlorid of sodium	97.7603 pr. ct.	97.6715 pr. ct.
Sulphate of lime	1.2952 pr. ct.	1.2350 pr. ct.
Sulphate of magnesia	0.0657 pr. ct.	0.0822 pr. ct.
Sulphate of soda	0.0257 pr. ct.	0.0184 pr. ct.
Insoluble matter	0.1295 pr. ct.	0.1235 pr. ct.
Water	0.7236 pr. ct.	0.8694 pr. ct.
	100.0000	100.0000

(No. 1 is a specimen obtained from the factory; No. 2 is a specimen obtained from the agent in Albany.)

Analyses of Ashton Salt.

	A.	B.
Chlorid of sodium	97.59 pr. ct.	97.660 pr. ct.
Sulphate of lime	1.67 pr. ct.	1.381 pr. ct.
Chlorid of calcium	0.01 pr. ct.	..... pr. ct.
Chlorid of magnesium	0.03 pr. ct.	0.059 pr. ct.
Water	0.70 pr. ct.	0.900 pr. ct.
	100.00	100.000

(The analyses of the Ashton salt were made by Prof. Cook; that of A is given in the Report of the Superintendent of the Onondaga Salt Springs, 1854, p. 20; the second, B, was made later, and was regarded as "a good specimen.")

The Ashton salt was selected for comparison, because of its high reputation among dairymen. From the analyses first given, the comparative purity of the two varieties of salt may be judged.

6th. As regards the absorption of water by salt, an erroneous impression is prevalent. Pure salt, it is generally believed, will not absorb moisture, even in a damp atmosphere. Such is not the fact. When the atmosphere is moderately dry, pure salt will remain unaffected; but when the air contains much moisture it will deliquesce, becoming damp in proportion to the moisture in the air. The water in the specimen of "Onondaga Factory-filled

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Dairy Salt," taken in Albany (No. 2), probably does not fairly represent, but is greater than the amount of water ordinarily contained in it. The specimen was taken from the storehouse on a damp day, and was conveyed to my laboratory in a bag. My limited time did not allow me to make other experiments upon this subject. It may be mentioned here, as illustrating the point under consideration, that the Ashton salt varies considerably as regards the moisture it contains (as indeed must every salt); thus the same specimen was found to contain, in different states of the atmosphere, as regards dryness, from 0.71 to 1.06 per cent of water. To obtain a just estimate of the character of different salts in this respect, so that correct comparisons may be made, the examinations ought to be conducted at the same time, upon specimens subjected to the same conditions.

7th. Hardly less important than the manufacture, is the manner of storing and shipping salt; great care exercised in the first, may be to a great extent neutralized by carelessness in the second. The manner of conducting the manufacture and treating of the salt at the Onondaga works was apparently that best fitted to remove impurities and to prevent the introduction of foreign matters. The salt seemed to be carefully stored and protected from dust and dirt. The barrels in which the salt was packed, at the time of my examination, were clean and dry, as were also the bags; all were accurately filled with their proper weight of salt, each being separately weighed, and when filled, placed under cover till shipped. The yards were gravelled, dry and clean; nothing seemed wanting to preserve the purity and good condition of the salt, so long as it remained at the works.

8th. The conclusions I would draw from my examinations are, that the "Onondaga Factory-filled Dairy Salt," as now presented to consumers, is a most excellent article, being, so far as I can judge, equal in purity to any of the foreign salts, and better than most; that its mechanical condition is that which is regarded as most desirable in an article designed for dairy purposes, while the care exercised in the storing and packing of the salt, are all that could be desired, and in my opinion it well deserves the approbation of this Society.

If the quality of this salt is kept up to its present standard, I see no reason why it will not meet with favor from the dairymen of the country, and every reason why it should, being furnished

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at a much lower rate than the best imported varieties. The public confidence, in any article, is not rapidly gained, nor are consumers quick to change from a good article they have long been accustomed to, to another brought to their notice, and claiming excellence.

Numerous chemical and other examinations, at various times, ought to be made by a disinterested party, of the salt as purchased by consumers or on sale, and the results published, together with the opinions of reliable dairymen, as to its value from their experience, in order that it may be determined whether a uniformly excellent article is produced; in this way I believe much good may be done.

The importance of the subject demands a most thorough investigation, and such I am sure it will receive from the New York State Agricultural Society.

In conclusion, I may congratulate the Society upon the excellent article which is presented for their approval, and the Salt Company of Onondaga upon the success which has attended their labors for the improvement of the dairy salt manufactured by them.

I cannot close this report without alluding to the Solar salt manufactured by the Salt Company of Onondaga, and now on exhibition. By a recently adopted process of screening, the salt is separated into large and small crystals, the former of which is preferred to the unscreened by many packers, being better suited for continuing the saturation of the brine as the meats throw out their juices.

As to the quality of this salt, I cannot speak from a personal chemical examination, but merely from the inspection I made of its preparation and mode of storing and packing at Syracuse; they seemed excellent, and the appearance of the salt was such as might be expected in the best.

As to the chemical composition of the salt, the analyses of Prof. Cook and others show it to be remarkably good, which testimony is supported by the experiments made under the direction of the United States Government during the years 1854–7, and in the report of which it is stated to be equal to the best imported salts used for similar purposes, as Turk's Island and St. Ubes, and in consequence is allowed to be used by contractors in the packing of pork and beef for the army and navy. The same salt, ground, is also exhibited to be used for various pur-

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poses; it undoubtedly possesses the same properties as are found in the unground salt.

All of which is respectfully submitted.

CHARLES H. PORTER,
Chemist to New York State Ag. Society.

The above report was read and approved by the Executive Committee, and ordered published.

B. P. JOHNSON,
Corresponding Secretary.

BASKET WILLOW.

D. L. HALSEY'S MODE OF CULTURE.

To B. P. JOHNSON,
Secretary of N. Y. State Ag. Society:

I grow the Basket Willow for hedge, by setting the cuttings in single rows in well prepared soil; set thirty-three to the rod, pushed into the soil six inches, leaving about two inches above ground; hoe sufficiently to keep down all weeds and grass the first season; dress down all the sprouts to within six or eight inches of the ground in fall of first year, or cut all close to the bottom.

The second year cut at three and a half feet high and interlace together; this may be done at any time from November to April, finishing up by a sort of binding, of the live willow, to keep the hedge-row straight and upright.

Trim yearly between November and April, using the osiers trimmed for market willow. My opinion is, from four years experience, that it will make a cheap, durable and paying fence. I have had none injured by field mice or by freezing.

D. L. HALSEY.

FAIR GROUNDS, *September* 19, 1861.

CULTIVATION OF THE PEACH IN WYOMING COUNTY.

B. P. JOHNSON, *Secretary:*

DEAR SIR—In compliance with your request, I humbly submit to you a synopsis of my experience and observations for the past fifteen years on the raising of peaches.

I am situated at the west end of Wyoming county, on high ground, and in this vicinity people have long since given up the

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idea of trying to raise peaches, counting it impossible to keep the trees alive. Repeatedly there have been a few trees obtained from the nurseries by different individuals, and as repeatedly have the failures also been. By accident I planted a few seedling peach stones, of an early northern variety, and set out about two hundred and fifty trees, some fourteen years since. At or about the same time I planted out about thirty trees called frost peaches, and fourteen trees raised from stones of the Crawford's late; of the Crawford's seedling I have one still alive; of the frost peaches three; of the early northern seedlings about *two hundred* are now standing in good condition to bear. Of the fifty lost, seven were spoiled by accident; eight by trimming; twenty-five were dug out because they bore poor fruit, or were poor bearers; three or four were killed or nearly so by mildew, and a few on a wet spot froze to death. I have repeatedly taken grubs from the bark near the roots, but do not think any trees died from their effects. The trees bore well while small, and in 1856 there was an unlooked-for large crop; this encouraged me to plant out more trees. I obtained two hundred budded trees, part from two different nurserymen; also planted from my own trees and budded from those I bought; all flourished well, and in 1860 the old trees bore a large crop—two hundred and seventy bushels besides the waste—and the trees I bought also bore some.

In the spring of 1860, I planted out over four hundred trees, three hundred of which I bought. The hard, early frost in the fall of 1860, and the winter of 1860 and 1861, tried my trees severely.

On examination in the spring of 1861, I found of my first purchased trees, two hundred in all, that one hundred and seventy-eight were dead or nearly so, and the rest badly frozen; of the last purchase of three hundred trees, there were one hundred and sixty-three that came to and lived, and one hundred and thirty-seven were dead, most of them root and branch, while over a hundred set out on the same ground, and three or four hundred in the nursery budded on the early northern roots, and some seedlings that mixed, were mostly alive, except the top twigs, and those budded with Crawford's late, a few of which were dead.

The old orchard stood, not a single tree of the two hundred early ones were killed, after a heavy crop and a hard winter. The twigs were many of them dead and the fruit buds were killed,

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but the tops were all alive except the small twigs; while out of eight frost trees five were dead to the ground.

I have made some inquiries to find where our nurserymen get their peach stones, and find a good share of them come from the south, and a good share of the rest are the frost peach, and the remainder are mostly of the large and tender kind—*all* of which, in my humble opinion, are unfit for roots in our cold climate, and I think they have done more to discourage the cultivation of the peach than all else. A nurseryman said to me the other day that if my kind of peach trees was going to stand our winters my fortune was made, for the stones would be of great value. I do not think so, for I am confident that any early seedling peach that ripens the last of August or the first of September, in our *latitude* and *altitude fit for roots*, and when we have an early, hardy root and bud with an early kind, the buds and wood will have a tendency to be perfect and ripe before frost; and, again, an early peach is almost always a good one, and it is better to raise seedlings than none; but I do not think the budding much detriment, if the root and top conform to the length of summer.

I am confident that our hills may be covered with peach orchards (where the subsoil is porous enough to let the water down) that will bear large crops once in two, three or four years.

Many have enquired of me in regard to my *treatment of peach trees;* it is simply to plant trees—better one year old or one year from bud than older, twelve feet apart each way; cut back to about eighteen inches; till with hoed crop; put ashes, lime, chips and old rubbish about trees; bank up the trees in the fall, until the tops get large enough to hold the snow on; think it bad to have the ground freeze deep about the trees; have used brush and straw to protect the roots.

Trim never in the winter, nor yet in the spring, but in the summer when the tree is growing fast, which can be told by the appearance of the leaves, with a little practice. Those limbs that make the widest forks are least liable to split down, and should be saved. I do not believe much in shortening in after the second or third year; think if a peach tree is trimmed when the sap is going down, when there is a check in the growth, it will injure it and perhaps kill it. This may be wrong, but it is my experience, and I have made many experiments upon worthless trees that I was going to dig out. The fruit buds of the peach

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start easy; a few warm days and they begin to swell, in valleys sooner than on hills; a hard freeze afterward, kills the fruit; this happens, but not every year. I have tried no remedy, but I think the top might be protected with rye straw. These hasty and very incomplete remarks (knowing that more light may give different views on many points) I humbly submit to your inspection; if you think you can do any good with them you are at liberty to do so.

N. P. HEDGES.

BENNINGTON, *Wyoming county, N. Y.*

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THE AGRICULTURE OF CHESTER COUNTY, PA.

By Luther H. Tucker, Treasurer of the Society.

For its excellent grazing lands, its tidy farming, and its commodious barns, Chester county, in Pennsylvania, has long enjoyed a wide reputation. During the month of June, I had the opportunity of carrying out a long cherished desire to see upon what grounds this reputation is based; and to the invitation of J. Lacey Darlington, Esq., Secretary of the County Agricultural Society, and the kind attentions of himself and D. B. Hinman, Esq., its President, I was indebted for a delightful visit, the notes of which are submitted in the following paper.

Chester county lies in the form of an irregular pentagon, with the Schuykill river and Montgomery county upon its northeastern line, Berks upon the northwest, Lancaster on the west, Maryland on the south, and Delaware State and Delaware county on the southeast. The surface is very well entitled to the appellation of a "rolling country;" for, without being sufficiently broken to render it, except in rare instances, too acclivitous for cultivation, it has nothing like plains or prairies within its bounds, and it varies several hundred feet in elevation from point to point, without containing anything like a mountain, and so gently that the highest summits sometimes seem scarcely entitled to the name of hills in the ordinarily precipitous acceptance of the word. These summits, nevertheless, command grand views of the surrounding vales; while they are often, if not, perhaps, as a general thing, equally as fertile as the lower lands—the exceptions to this rule being rendered such by differences in the geological formation beneath them. The valleys are as winding and varied in form as the undulating heights that overlook them, with the exception of the "Great Valley," as it has been called *par excellence*, or "Chester Valley" in more modern parlance, which runs nearly east and west all the way across the county; bounded on the south by a range of hills, underlaid with a slate formation, constituting probably the least valuable farming lands in the county; having, beneath the course of the valley itself, that extensive deposit of

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limestone which has done so much to advance the agriculture of this whole region; and, stretching away upon the north, another range of highland, similar in geological character to the largest part of the country around—that is, resting upon gneiss and mica slate. Beside the long and narrow limestone region in the Great Valley, there are only a few scattered points at which this rock occurs; and when we add to what has been said above, the fact that a green serpentine here and there appears in spurs, to the south of the slate range, and that a red shale is found just along the Schuylkill, we shall have a tolerably complete idea of the geology of Chester. The soil is generally a rather stiff, sometimes quite a clayey loam; the subsoil almost universally clay, and while there are fields now and then which contain so many stones as to require a good deal of picking, and supply considerable stone wall, little of the land would be thought really *stony* by one who has seen those New England districts, in which it seems as though the more that are taken off, *the more there are left behind* to impede the plow share and the hoe.

Having a surface thus varied, Nature has in great measure taken care of the *drainage* of the land. With the exception of occasional springy spots, where the outfall is obstructed, artificial drainage has not therefore been largely introduced, and there are perhaps as few or fewer waste and marshy lands here, as in any district of equal extent in the country. What wet places do exist are generally confined to a few acres, and on the best farms have frequently been already reclaimed by the construction of stone underdrains.

But Nature has done more than merely look after the general drainage of the soil. She has provided springs of the purest and softest water, from which almost every farm not only supplies its fields and buildings, but also in numerous instances propels its machinery, or at least carries this agent of cleanliness and comfort into every part of the farmer's dwelling. I doubt if there is any other district in which water rams for this latter purpose are so commonly in use, while some prefer a water wheel and pump as a more permanent and substantial fixture. The spring houses on the dairy farms facilitate the making of the best butter, in warm weather; and such springs, with the clear trout streams which here as elsewhere accompany them, can scarcely be overrated in estimating the agricultural resources of a country.

Through the heart of Chester county run to the southward the

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two main "branches," which unite, some miles after crossing the Great Valley, to form the Brandywine, the banks of which river are quite high and precipitous at several points, but more commonly resemble what our western friends style "bluffs,"—while its flats, nowhere very wide, are even more famous for their pasturage than any other grazing lands around. It was on some of these meadows, I believe, that the late James Pedder once said he could almost accept the punishment of Nebuchadnezzar with a cheerful heart. The cattle at least enjoy being turned out to grass upon them, however it might be with man.

To render the picture of Chester county and its agriculture more complete, I should add that probably twelve or fifteen per cent. of its lands are under wood. As this is scattered about, in wood lots upon every farm, the views from prominent elevations always include shade enough to render the landscape a peculiarly charming one; but it has been an article in the creed of most Chester farmers, that no trees are wanted in the fields themselves. The most common style of fencing is with rails, either laid in worm-fence fashion, or what is very common, inserted in morticed posts—the latter making a neat and serviceable enclosure, except that the posts will rot off about once in every fifteen years. There is a good deal also of stone wall, but in a latitude where the winter season is a constant succession of freezings and thawings, there seems to be somewhat more difficulty than there is with us in preventing tumble-downs from action of frost. Hedges of the Virginia thorn are found to some extent, but are not nearly so common here as in the neighborhood of Wilmington, Del., where I remember having much admired their beauty several years ago.

The agriculture of Chester county is exclusively of a grazing and dairying kind, including only about a sufficient extent of wheat land for the bread of those who cultivate it; enough oats, straw and hay for the farm and village horses, and enough of the two latter and Indian corn for the cattle and sheep which make the butter or are fattened for the Philadelphia butchers. It cannot be called a *breeding* country either, for most of the live stock comes from the western part of the State, from Ohio, and sometimes even from still farther to the westward, to be fed or grazed here for from six months to a year before it is finally marketed. But there is, nevertheless, considerable valuable stock bred both for beef or mutton, and for butter purposes; I was scarcely pre

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pared to find the Alderney cattle, for example, so considerably diffused and so much in favor,—while the fact above alluded to, together with the skill exercised by the Chester farmers in the selection of their store cattle, deeply tinged with the Short-Horn blood of the West, renders the stock of the country superior as a whole, I think, to that of any district of equal area I have ever so closely examined. As to the swine, I need scarcely add that where the "Chester County" pigs are so commonly found, there must be a deal of fat pork cheaply made; all farmers do not have, by any means, what can strictly be called by this name, but the average character of the swine one sees, appears to be very good; and, where so much butter is manufactured, there must of course be many a populous sty to consume the butter-milk to advantage.

The great beauty of Chester county farming is its *neatness*. As we drive through the roads, or walk from field to field, there are no ugly fence-corners, full of briars and weeds; the wheat and oats are remarkably clean of these intruders, and some of the corn-fields are almost as perfectly weeded out as an English turnip crop. It was a good sign to see a man with a scythe at work along the roadside; for it bore witness to the care that is taken to cut off the vegetation there before its seeding time, as well as to that other scarcely less important fact that farmers here do not expect to keep a portion of their stock at the expense of their neighbors and the public.

The population of Chester county is largely composed of the descendants of those who first occupied its lands under William Penn, whose charter was dated precisely one hundred and eighty years before the inauguration of President Lincoln, namely, the 4th of March, 1681. While many of the young men have gone to other callings, there has never been a large emigration to the newer Western States. The farmers here have been stout to withstand innovation, and consequently somewhat slow to adopt improvements, adhering to a method of cultivation, when once adopted, with great tenacity; but, on the other hand, they seem to carry out a thorough-going system in what they do undertake, and to be "regardless of expense" on any point in which stability and permanence are concerned. Their houses are built of stone, roomy and commanding; many of them have already served for one or two generations, and bid fair to stand for the use of many more. Their barns are also of stone, and with the

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sheds extending around for the shelter of stock and manure, resemble—to compare great things with small—some gigantic and motherly "biddy," with wings outspread for the protection of her quadrupedal brood. These buildings, both dwellings and barns, are generally rough cast with plaster, or gravel coated, and then whitewashed; and this not only protects the walls against driving rains, but gives a tidy appearance to the farmstead, which, taken together with the size of the buildings, renders a Chester county farm-establishment something quite *sui generis* among American country homes. Another point that may be noted is the frequency with which the farmstead is found at a distance from the public road; a central location upon the farm having been quite commonly chosen for the sake of convenience in working it, instead of a site in which the farmer only consults the readiest mode of *getting away* from its duties to something else.

There appears to be a growing and already quite prevalent taste for fruits and flowers; and the agricultural and horticultural societies have done much to promote improvement in this as well as in other and more practical directions.

I have already referred to the connection that exists between the deposit of *limestone* in the Great Valley, extending for a distance of about sixty miles, from the Susquehanna to the Schuylkill—and the progress of agriculture throughout a large district, both to the northward and the southward of this deposit. Lime-burning has been practiced here for many years; the grandfather of Dr. Geo. Thomas—who was one of the pioneers in its introduction, and who died in 1793—having done much before his death to call attention to the subject, and having first employed lime on his own land, as we were told by Dr. T., probably about the year 1787. The adoption of the practice, however, only became general by degrees; those who were first convinced of the benefit resulting from it, had a comparatively high price to pay, and it was not until the proof of this benefit was made very clear indeed, that the kilns became numerous and the farmers' teams began to cluster about each one, from distances of ten or twenty miles, as soon as the report went out that the freshly burned lime would be ready for delivery at a particular time.

As to the effect of lime, I was told of farms which would not cut half a ton of grass or five bushels of wheat per acre, by its

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application alone made to yield, within four years, crops three times as large—say, a ton and a half of hay and fifteen bushels of wheat. Upon its first application, I suppose that dressings as heavy as a hundred and fifty or two hundred bushels per acre may have been given; but the weight of experience appears to lean now to smaller and more frequent applications, and fifty bushels upon thinnish land, and one hundred on the best and strongest soils, put on at intervals varying from six to ten years, or thereabouts, may be regarded as the customary rule. Employing the one apparently unvarying rotation of corn, oats and wheat, followed by grass, circumstances regulate the length of time that shall elapse before the grass is again broken up for corn, when, almost invariably, the liming is renewed. If, as is quite common, the grass is mown for two seasons and pastured two more, the rotation becomes one of seven years, with a liming always at its commencement; but if the pasturage is extraordinarily good, it may remain eight or ten years before being broken up—in rare cases perhaps receiving a top-dressing of lime during this or a still longer period, although such a mode of farming would be regarded as out of the usual routine.

The generally excellent natural drainage of the land, already referred to, doubtless renders the efficacy of lime peculiarly great on the soils of Chester; for I suppose there is no fact more clearly proven, than that its action is at best exceedingly imperfect where stagnant water approaches the surface, or where even the escape of that which falls in rains is seriously impeded. Upon land seeded down to clover and timothy—the natural grass of the region—the *poa pratensis* of botanists, the "blue grass" of Kentucky, the "smooth-stalked meadow grass" of English writers, and the "green grass" of Pennsylvania and Delaware—here comes in of itself, together with white clover, forming a fine compact sod; upon turning under this sod, preparatory for a renewed course of cropping, the decomposition of its matted roots and stems is accelerated by the action of the lime, and they are at once made available for assimilation by the ensuing grain-plants, while at the same time the soil appears to be rendered mellower in mechanical condition, and cleaner of weeds. It is probably in these respects that the application of lime so frequently as once in six or eight years, is found to be warranted by experience, although there are some who question whether this course

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is not now adhered to from long habit, rather than from certain evidence of its necessity.

Again, I suppose it is an accepted fact, that the repeated application of lime, as a sole dependence, without the use of stable manure, or without *allowing the land to lie in pasture* for a due proportion of time, is rather exhaustive than beneficial in its effects, by drawing too heavily and rapidly upon the vegetable constituents of the soil. But in Chester county, much attention is paid to the management of manure, and as it is a grazing country, there is no temptation to break up pastures prematurely. As I was returning to Philadelphia in the company of M. B. Hickman, Esq., an extensive and observant farmer, I inquired whether, after the application of lime for so long a period of years, there had been any symptoms of decline in the production of the land, or diminution of the benefit derived from it; his answer was decidedly in the negative; those who "limed most, have been pretty sure to manure most," they are the best and most careful farmers in other respects, and their land is constantly advancing in productiveness. In the days before liming, a farmer on two hundred acres was a "poor man." He thought that during the past twenty years particularly, the custom of liming had advanced with great rapidity.

The size of Chester county farms varies, of course, quite widely—say, from less than a hundred up to here and there one of three or four hundred acres; but perhaps the average size is about one hundred and fifty. I was told that the character of the farming I saw within a circuit of ten or fifteen miles from West Chester should be taken as not more than a fair sample of that throughout the county at large—a surface of four or five hundred thousand acres; or, to arrive more nearly at a general estimate of the farming throughout the county—dividing it, for the sake of an estimate, into these three classes—that if *one-fifth* could be rated as "poor," and *one-fifth* as "medium," the other *three-fifths* would justly rank as "good." Near villages the land is rated at from $125 to $150 per acre, with some higher figures for extra improvements, and $100 is regarded as a fair price for good farming land anywhere in the county. A farm of a hundred and fifty acres may have fifteen or twenty in wood; on a farm of this size there will very likely be bought a hundred sheep for pasturing during summer, sold fat in autumn, a breeding flock kept, numbering twenty or thirty head, and about thirty bullocks

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purchased in autumn, wintered on hay with little or no grain, and fattened on the pastures to go to the butcher along about harvest time. Four or five horses will be thought enough to do the work of the farm. If the farmer is himself a man of close attention to business, one assistant engaged by the year is all that he needs, with extra hands at harvest, and perhaps at corn-planting.

The contents of the barn-yard go to the oat stubbles before plowing for wheat, which, as well as oats, is always drilled in. As to plowing, there is an ancient notion still very prevalent that about *three inches* is the proper depth for corn—the average would not be more than four inches—while for other grains they go a little deeper. But the more intelligent farmers are getting to think more favorably of plowing to a somewhat greater depth, and subsoiling has its advocates and some who practice it. Mr. Darlington's experience in nursery cultivation has shown very plainly the advantages of using a "double Michigan," that will go down fifteen or sixteen inches, and he says that he "could not grow fruit trees without it." Not only would deeper plowing enable the plant roots to penetrate farther, so as to stand better during seasons of drouth, but it is also a common opinion—at least I heard it so expressed in England—that lime *sinks* by degrees below the reach of the root, and that subsoiling or deep plowing tends to keep it longer within an accessible distance, or to bring it again within reach, if already gone below it. The depth of the upper soil is sometimes ten inches or more, but the yellow clay below, if turned up in autumn, and exposed to the action of the winter frost, is not found by those who have fairly tried the experiment to have any deleterious effect upon the crop that ensues. The plow commonly in use, called the "Wiley plow," was invented by a man of that name at Kennett Square, and the castings are made for it at Peekskill, in this State; it is employed for grain crops, and will run six or eight inches deep. The plow common for sod plowing is an old implement known as the "Bar-share." The use of the drill, as already intimated, is universal, and the roller is quite frequently employed before drilling, or in spring on the wheat land, if the frost has thrown out the roots, or more particularly to prepare the surface better for the use of a reaping machine. Of wheat, a bushel and a peck to a bushel and a half, is the common amount of seed per acre; of oats, two to two and a half bushels. No *spring wheat* at all is grown.

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The *corn* is the large Southern, running up sometimes to a height of twelve or fifteen feet, so that "a tall man can with difficulty hang his hat on the ear." The distance is four feet each way—three or four stalks to the hill, seldom more than one ear to the stalk. All the cultivation of the corn is done by horses—the cultivator employed being two feet two inches wide, so as to lap a little in running twice between the rows. It has five teeth, two on each side and one on the centre-piece of a triangular frame-work; and as the two on the side that runs next to the corn hills are placed respectively nearest to the point and end of the implement, by a little skill in *steering* the thing, a careful driver may slightly vary his course so as to get the space in the rows between the hills pretty well stirred by the hindermost tooth, and not interfere with the stalks of the corn itself. As to the *roots* of the corn, there is probably not much doubt that in any such wholesale system of cultivation they must suffer more or less abridgment, as it is scarcely possible so to adjust the machine, as to depth and distance, as to cut off all the weeds and leave the plants entirely untouched. But this evil of horse cultivation, as compared with hand-hoeing, is doubtless much more than counterbalanced by its cheapness and the greater frequency and promptness with which it is performed. On the best farms seventy-five bushels of corn per acre is not an unusually heavy crop, but the average, of course, is below this figure.

Our first day's drive, June 13th, carries us in a northerly direction from West Chester, across the slate ridge to Oakland in the Great Valley. We stop, soon after setting out, at a commanding point on Cemetery Hill, for the prospect's sake; and the fine sugar and silver-leaf maples that shade the pleasant streets of West Chester borough, continue here and there to stretch their graceful boughs over the country roads and lanes. We pass, not far away, extensive marble quarries now unworked, but supplying an excellent quality of this material for the purposes of the architect. Just back from the Oakland station, we climb the hill—pausing at a smith's to scrutinize the different styles of cultivator teeth newly re-pointed before his door—and here we overlook the course of the Great Valley for many miles—a view still more extensive when the heavy foliage of the trees is stripped away in winter, and variegated with the most brilliant of colors when the frosts of autumn are at work among the maple leaves. We can judge something—as we glance along the farther slope of the

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Valley—of the proportion of land, in each farm, under wood; while the brown surface of fields, as yet but faintly dotted with the growing corn, or the wavy ripples coursing with every breeze over the headed wheats, enable us also to distinguish between the farmer's grains and grasses—pasture and meadow land far exceeding in proportion that which shows these signs of recent tillage. Thence to the farm of Dr. Thomas, which gives its name to the railroad station, and which stretches across the Great Valley, and forms a part of the five thousand acres which Richard Thomas or Ap Thomas held eight generations ago, by direct purchase from William Penn—a purchase at fifty cents per acre or thereabouts, much of which still remains in the possession of his direct descendants, in whose hands it has reached its present value of two or three hundred times the original cost, and one or two of whom hold their farms to this day by inheritance from father to son, *without any other title on paper or of record*, than the original deed under the sign manual and seal of the founder of the State.

Dr. Thomas has a farm of 500 acres, of which there are 250 under cultivation. He has underdrained quite extensively—some parts of the farm requiring relief from surplus moisture to a greater extent than is common in many other parts of the county. The other points of most agricultural interest here, were—the dairy of thirty cows, all of them, I believe, Alderneys or Alderney grades, and the flock of South-Down sheep, which latter we did not see. At the spring-house we found about a hundred and fifty pounds of butter awaiting a market, made up in stamped *pats*, or *prints*, of an exact pound each, as is the uniform custom with all butter sold at Philadelphia, and presenting the neatest and most delicious appearance conceivable.

The ornamental grounds about Dr. T.'s residence receive no small share of his attention. A grapery forty feet long had a very convenient contrivance for obtaining air, much simpler than sliding sash, consisting of a kind of trap-door arrangement opening from below to a width varied with the amount of air it is desired to admit, and preventing rains from beating in upon the vines themselves. I could not make a description very clear without the aid of a diagram, and had better not attempt it here. In an orchard-house we found peaches, apricots and nectarines rapidly approaching maturity. There are some fine and rare trees standing in the lawn, and a little sheet of water below the

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garden floats a row-boat and furnishes a considerable supply of fish. The kinds of strawberries grown by Dr. T. are the Hooker, Wilson's Albany, Triomphe de Gand, Peabody and Vicomptesse Hericart de Thury—no other one of which is found to compare with the Wilson's Albany for productiveness and size of fruit, although retained for superiority in quality.

We have so much ground to go over, that we must of necessity be very brief in these notices of individual visits—a fact which I mention in connection with "Oakland," with much regret, for at no point at which we called were there more features of general interest, if the space to refer to them all particularly could be commanded. Uniting a great taste for horticultural pursuits with the successful management of so large a farm, Dr. Thomas has brought his estate into a condition having probably few, if any, parallels in the county, as regards a combination of both the beautiful and the useful, in rural life.

Proceeding thence up the Valley, we noted from our carriage, a remarkably good wheat-field of twenty to twenty-five acres on the farm of Mr. Thos. Downing—*perfectly clean*, and with heads thick and plump enough to yield perhaps thirty or thirty-five bushels per acre; and, at a distance of about two miles from Oakland, called at the residence of Richard I. Downing, Esq., who has been devoting himself for a year or two past, to the management here of about 700 acres of land, of which there are three or four hundred tillable. Like a part of Dr. Thomas' farm, this is in the limestone region, but the application of that mineral makes the wheat and grass turn out none the less famously on this account, we were assured; and the grain we saw growing here, particularly a field of forty-four acres, partly in barley and partly in oats, and one of about twenty acres in wheat, was coming on excellently well. The cultivated fields were all very clean and tidy. Mr. D. makes no butter for sale, but grazes sixty to seventy head of cattle for beef, buying them in the autumn, and generally able to select out of so many, more or less that will repay winter feeding to go to the butcher fat in spring, while the larger part receive hay but no grain during the winter months, and are fattened at pasture the succeeding summer.

Mr. D. burns his own lime, and in passing the kilns we took the pains to ascertain the most approved form and size adopted in their construction. They are of oval form—larger diameter

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16 feet, smaller 12 feet, at top—18 feet high, growing wider from the bottom to the top all around at the rate of three inches to each foot ascent—constructed in the hillside, so as to have three sides protected by the solid earth, while the front wall is made eight feet or more thick at the bottom, and about five feet thick at top. A flue enters at the bottom perhaps two feet wide and one foot high, which is filled with kindling wood, and covered with a grating; then come layers of coal and limestone in the following order:

1st layer—16 bush.	fine coal,	with	13	in. deep	of limestone	above it.
2d layer—16	do	do	13	do	do	do
3d layer—18	do	do	14	do	do	do
4th layer—22	do	do	18	do	do	do
5th layer—20	do	do	22	do	do	do
6th layer—22	do	do	24	do	do	do
7th layer—25	do	do	22	do	do	do
8th layer—31	do	do	22	do	do	do
9th layer—41	do	do	22	do	do	do
10th layer—47	do	do	24	do	do	do

This is heaping the kiln, and takes four days in burning, consuming ten and a half tons (net) of coal, and yielding about 1,400 bushels of lime, which Mr. D. computes to cost him, for quarrying and all, performing the work as he does with his own teams, &c., only *four cents a bushel.*

Concluding our call at Mr. Downing's with the trial of an excellent sample of sparkling bottled cider, we proceeded perhaps two miles farther along the Valley, passing through Downingtown, to the farm of Dr. J. K. Eshleman, President of the Fruit Growers' Association of Eastern Pennsylvania. And here we may take occasion to say that of all the various localities in which the *Wilson's Albany Strawberry* has become a favorite variety, we have never visited any, where it seems more completely to have cast all others into the shade, than here in Chester county. Dr. E. could raise *five*, if not *ten times the quantity* of fruit from it, as from any other kind, with the same care and on the same land; he has tested *sixty-two varieties*, so that he is qualified to speak, and out of them all had determined to retain but *three—Walker's*, which he prefers for his own taste, *Burr's New Pine*, and the *Wilson's Albany.* Of the Wilson's Albany, he had had twenty-eight quarts from a bed containing 60½ square feet; the first year after planting it produces well, the second year still better, the third year about as much as the first, after which new beds are

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formed. At the meeting of the Fruit Growers' Association of Eastern Pennsylvania, in June, 1860, there were twenty-five votes given for Wilson's Albany "for general culture," while the highest received for any other sorts, were eight votes for Hovey, and seven each for Triomphe de Gand and McAvoy's Superior. At the same session Triomphe de Gand stood highest "for special or amateur culture," having eleven votes, while Vicomptesse Hericart de Thury (can't some ingenious pomologist propose an abridgment of this formidable name?—how would *Hericart* answer alone for instance?) stood next, having ten votes.

One is perhaps excusable for overrating the importance of this luscious fruit, precisely at the season when it is in most luxuriant bearing, and in a region that seems peculiarly adapted for its production. It is true that blessings appear to "brighten as they take their flight," and some one who was asked in our presence, which he preferred, the strawberry or the peach, philosophically answered that during the season of either he was quite likely to fancy a preference for *the one that had passed by or was still to come.* But neither the pleasures of memory, nor those of hope, had ever charms for us equal to the delights of realization, as each fruit arrives at its maturity, so only that in quantity it shall suffice; and reverting once more to the question of strawberries, the certainty of a many-bearing kind, the fruits of which, in very bigness as well as abundance, shall enlarge the eyes of those who see, and their solidity endure the handling of those who sell, will go far to counterbalance, to our less fastidious palate, the slightly extra supply of sugar necessary with the Wilson's Albany—at least now that the diminished "tariff" on that commodity has so much reduced its price. Such, we think, is the feeling of Chester county cultivators; certainly of all who grow the fruit for sale.

After leaving the well managed grounds and orchards of Dr. E., whose Chester County pigs, and other stock, we had not had time to look at, we proceeded somewhat farther along the Valley, at length turning to climb Caln Hill, passing the fine farm of the late Richard Pim, and commanding a noble view, at several points, of the landscape below us—thence winding down the North Valley hill by the old Lancaster road—whose course we had been able to descry in the morning from just behind the Oakland station, eight miles or so away—thus reaching Down-

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ingtown by another route. Along Beaver creek we passed some old "water meadows," where irrigation had been practiced in former times for the purpose mainly of securing the more rapid formation of a thick sod; it was before the introduction of those twin companions in every meadow of modern days, "clover and timothy," and one then had to wait the gradual coming-in of the "natural grasses," at their own good pleasure. Nevertheless we could not but suggest that the grass lands of the present more advanced stage of farming are in reality no less benefited by irrigation than their predecessors; and it seems a pity that it should not be once more undertaken where the facilities for accomplishing it are so great.

Presently we made a brief stoppage at Mr. W. D. Sugar's, who is an officer of the county society, and has an excellent dairy farm, with a substantial Chester county barn, and other noteworthy features. The ice-house and dairy room are conveniently arranged in connection with each other, and the latter was evidently in the full tide of successful operation. Mr. S. uses Embree's Patent Butter Worker, and finds it a great labor saver, putting through twenty pounds of butter, in good style, in about three minutes. It certainly looks as though it might bear out the high recommendation he gave it. At the barn Mr. S. has the assistance of water power; he thus cuts the feed for his stock, wets it up, and finds himself well repaid for the extra attention required. He had also tried steaming, I understood, but had not found this process a profitable one. The size of the barn below is 50 by 60 feet, but an addition above gives 80 feet length of floor room. The cellar below is 10 feet high; then come, constituting the first floor, the stalls for cattle, and the horse stable, eight feet high; the second floor, also of eight feet height, is occupied by granaries, and bays descending from above; on the third is the thrashing-floor, accessible by a bridge from the hillside without, and, if my notes are correct, it is 22 feet from this floor to the ridge of the roof. The barn thus contains an immense amount of space, and it is all handily arranged. Among the outside matters we find a pig-pen, the lean-to roof of which, instead of being stationary, is hung upon a pivot connecting the centre of each end with an upright in the end of the pen, so that the roof turns to slant towards either north or south, as may be desired; in winter time it slants to the north, and keeps that side of the pen tight against the wind, and the southern side

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open to the sun, and at the approach of warm weather its position is reversed, with of course precisely the contrary effect. No doubt all animals thrive the better for a reasonable degree of attention to their comfort, and we submit Mr. Sugar's pig-pen to the judgment of all merciful readers.

The very first sentence in this correspondence alluded to the commodious barns for which Chester county has been famous for many years. The style of "hill-side" or "double-deck" arrangement, adopted here many years ago, has come now to be considered an indispensable feature in a good barn almost anywhere. Instead of attempting a detailed description of any one in particular at present (I was kindly promised at some future day, the dimensions and details of two or three which seemed particularly comprehensive and convenient), I may give the following outline, as conveying a fair idea of them all: A Chester county barn will cost from $2,000 all the way up to twice this sum, but generally runs from about $2,500 to $3,000; as already stated, the walls are substantially built of stone; there is generally a main building, perhaps fifty or sixty feet square, with a bridge-way entrance, as we saw at Mr. Sugar's, to the thrashing floor in the third story. The doors are all hung with wheels upon a rail above, so as to slide backward; what hoisting there is of hay, is done with a horse-fork, and two-horse endless-chain railway powers are in almost universal use for thrashing, &c. The bottom floor, intended for stock, is generally of mortar rammed tightly down, inch by inch, when the mortar is about two-thirds dry. There are very often sheds around three sides, perhaps open through into the barn, both in the basement, and in their upper story, for they generally have a large loft for the storage of straw. The bays in the main building open down from the thrashing floor to the sills above the basement, and the remainder of the space is used for granaries, &c., &c.

From Downingtown to West Chester, we returned by a delightful road along the banks of the Brandywine, at first quite abrupt and precipitous, afterward more undulating, and including grazing lands of great superiority. Here several excellent farms were pointed out to me—among them I remember that of Mr. Isaac Hayes, a large grazier of premium fat cattle. Another excellent grass farm which we had admired near Downingtown, was that of Col. Sam. Ringwalt, who took the first premium in 1859, on the management of fifty acres; in that year six acres

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and ten perches, mowed the first time with timothy and clover, produced 44,147 pounds of hay, weighed dry out of the field—and ten acres of green-grass land, not plowed for twenty years, produced a first crop of 32,670 pounds of "remarkably fine hay," and on the 2d of September were said to be ready for the cutting of the second crop. His account with a piece of pasture land of twenty-two acres in extent, was as follows, aggregating for twenty-four hours:

720	days'	pasturage	of horses at 10 cents	$72 00
680	do	do	oxen at 8 cents	54 40
240	do	do	drove cattle at 8 cents	19 20
1,080	do	do	cows at 8 cents	86 40
176	do	do	young cattle at 5 cents	8 80
1,205	do	do	sheep at 1 cent	12 05
1,680	do	do	swine at 1 cent	16 80
				$269 65

Col. R. stated at the time, that he attributed his successful results "in producing hay, grass, wheat, corn, potatoes and vegetables, to the application of Columbian guano," having applied it on all his land, and for all crops, since the spring of 1856, particularly on grass, applied in November, 1858, at the rate of 250 pounds to the acre. He had devoted especial attention to raising cattle, and selling hay: selling seven yearly at two years old, at from $35 to $45, and from twenty-five to forty tons of hay.

The next morning, June 14th, we started in the direction of Goshen. Our first call was at the farm of Mr. Chas. W. Roberts, who was unfortunately away from home. In going out to see his flock of Cotswolds, to which he pays special attention, I noted the nicely piled manure under his sheds, and other evidences of good farming. The townships of Goshen, east and west, are even more rolling than some other parts of the county, but many of the grain crops we thought equal to those we had noticed in the Great Valley; the corn appeared well along and thrifty, and here and there a field of wheat was very clean and promising. After a little *detour* to get a fair glimpse of this region, passing "Rocky Hill," and remarking thereabouts the occasional walnut trees, which are thought to be an index of good land, we made our next stop at the cattle and fruit farm of Mr. Abram W. Bailey, in West Town. His land is well managed and very pro-

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ductive, and he thinks it well calculated for orcharding. Several hundred dwarf pears, now in their third year, and other young fruit trees, would go far, in appearance at least, to vindicate the correctness of this opinion. Mr. B. has a dairy of fifteen cows, and is pasturing about the same number of beeves. Upon a farm of not quite 200 acres, he generally keeps in the neighborhood of fifty cattle, young and old; he has twenty-seven acres under the plow—nine each in corn, oats and wheat—annually breaking up nine acres of grass land in the rotation already described; he mows twenty acres of hay, and calls *two tons and a half* per acre a good crop, although he was looking a little higher, I believe, the present season. His barn is a fit one for such a farm, measuring 56 by 120 feet; after looking it through, we took a stroll into the pastures, which evidently had never suffered from "overstocking" or neglect, and found the grazing cattle to be a very choice and well grown lot.

We then proceeded to Mr. Wellington Hickman's, passing, before arriving at "Waterloo," his home farm, another farm which he has more recently purchased, and where we noted that in the renewal of the fences, advantage had been taken of the long accumulation of vegetable matter where the old fences had stood, to plow up the materials of a large and excellent compost heap. At "Waterloo" we found 224 acres of land, of which only about twenty-four acres are occupied by wood, gardens, orchards, roads, &c., in a fine state of cultivation, as will be shown by the crops it has produced. For ten years past, Mr. H. has averaged here a crop of 75 to 80 bushels of corn per acre; last year the season was unfavorable, and the crop the smallest of the ten years—being only 960 bushels on sixteen acres. As to the total products of the farm in 1860, a little statement with which Mr. H. was so kind as to provide me, will convey a fair idea, and it shows what is considered good farming in Chester county:

THE CROPS.

14 acres of wheat produced 420 bushels, at $1.40	$588 00
17 acres of oats produced 1,200 bushels, at 33c	396 00
16 acres of corn produced 960 bushels, at 60c	576 00
Market value of grain crops on 47 acres	$1,560 00
42 acres of hay produced 75 tons, at $10	750 00

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THE STOCK.

30 head of cattle, bought at an average cost of $40 per head, sold for $77 each—profit on the 30 at $37	$1,110 00
72 ewes, bought at $2.50, sold with their 92 lambs at $4.25—profit on a total of 164 sheep and lambs	602 00
Gross product of farm valued at	$4,022 00

Of course this statement is larger than the actual net return of the farm, as the hay, and probably much of the grain, are counted a second time in the profit on the live stock consuming them. But that does not lessen the value of these figures for purposes of comparison. It will be perceived that the wheat averaged thirty bushels per acre, and the oats a fraction over seventy bushels; and that the money return was $42 per acre for wheat, $23.29 for oats, and $36 for corn, or an average of $33.19 per acre for the 47 acres in the three grains, which is not by any means an unpleasant result to reach.

With the sheep, Mr. Hickman was very successful in the foregoing instance, although not more so, I understood, than he has been in other cases. Seventy-two ewes were bought in the fall of 1859 at $2.50 each, as above stated; they were the common sheep that are driven to the eastward from Western Pennsylvania or still farther off, and they brought in 92 lambs the following spring. The whole 164 were disposed of at $4.25 per head, to go off as wanted from June to September—the fleece being probably worth about a dollar per head, and the remainder of the price agreed upon going for their mutton value. The lambs were sired by South-Down rams, and probably sold the better for this fact—getting greater size, and helping off the ewes at a fair figure all around. The cattle were bought during September and October, and sold in the spring to be taken from time to time during the season. An item that may be stated in connection with the *sheep* is this: Mr. Hickman considers that pasturing the land with them, before breaking up for corn, and then putting a little salt in the hill, together constitute an almost sure protection against the cut-worm.

Mr. Hickman's experience is strongly in support of our frequently repeated theory as to the possibility of adding immensely to the production of the land by a well-regulated system of stock-feeding upon it. This farm was awarded the prize as the "best

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cultivated farm," by the county society three or four years ago, and Mr. H. then informed the inspecting committee "that since he commenced feeding the large stock which he now winters, his farm is improving yearly, as shown by a largely increased product of hay and grain"—a statement which could probably now be again made as truly as it was then. The committee also reported, in language almost precisely the same that I should have now used if they had not anticipated me:

"The buildings, placed with a view both to beauty and convenience, are in fine order, having most comfortable and inviting accommodation for man and beast. Around the house are various well selected shade trees, a well tended and luxuriant garden, and an abundance of well selected fruit, ample and convenient kitchen and domestic arrangements, free from the usual attendant nuisances. The barn is large, having two floors, on the lower of which are granaries, well planned and smooth in their finish, being also lofty, well lighted and airy; adjoining is a roomy wagon-house; above, a large floor for thrashing, with ample mows and straw room; below are well lighted and well ventilated stables for twenty-nine head of cattle, eight horses, and an extensive sheep stable, besides a large and comfortable apartment for harnessing and cleaning horses, while outside is a wide and well sheltered shedding, open to the warm rays of the sun; both ends of the yard are well supplied with water, being altogether a most complete, and well arranged farm and barn-yard."

The size of the barn is 58 by 78 feet, with a shed 33 feet deep at the end. Mr. Hickman has now occupied the farm eighteen years, during the first three of which he put on 10,000 bushels of lime—an investment which we presume has never failed to pay satisfactory dividends.

From Mr. Hickman's pasture fields we crossed over to see the Alderneys belonging to Samuel J. Sharpless, Esq., including two young cows imported by Mr. S. last August, and one brought over in May, 1858, by Mr. W. F. Potts. Without being quite certain of the identity of each, as there was no one present to act as guide, we can at least pay the general compliment to their appearance, which the beauty and docility of the ones we saw deserved most highly; and I should not hesitate to rank them side by side with the best importations I have ever seen. On a commanding eminence above, Mr. Sharpless is just completing a

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costly and substantial stone mansion, from the terrace around which the view in almost any direction is very fine.

Seating ourselves once more behind the horses, our next stop was with Borrowdale Pritchett, Esq., who had joined us at Mr. Hickman's. He occupies a dairy farm in that immediate vicinity, and we saw enough of it to regret that we had not time for a still longer call. I understood that Mr. P. was now making butter from thirty cows, but for the two years before he has had thirty-five in milk; in 1860, he made 6,000 pounds of butter from the thirty-five, being an increase of 1,000 pounds upon the gross return of the preceding year, and I found him disposed to make the average per cow still larger hereafter. It is my impression that the amounts mentioned do *not* include the milk, cream or butter consumed on the farm; in 1860 the average was a fraction over 171 pounds per cow per year, which may be considered as doing pretty well. Mr. P.'s "barn is large and convenient, well provided with straw houses, and affording fine shelter for cattle, with running water in the yard. His dairy fixtures are very complete. His cow-house contains thirty-six stalls, with a feed trough in each. The spring-house, with a neat cottage residence over part of it, for the dairyman and his family, is large and conveniently arranged for all the purposes of an extensive dairy." So said a committee of examination on the part of the county society, two or three years ago; and so said we when we had also "gone the rounds." The "cow-house" spoken of is used, I believe, only while the cows are being milked; it gives each a comfortable place to stand while she disposes of her morning or evening feed, and at the touch of the "milk-maid singing blythe," also dispenses her proper quota toward the next churning. But *milk-maids* belong mostly to an age gone by, and the *singing*, I believe, to a millennial epoch that has never yet arrived—nevertheless, I was told that there is nothing of an agricultural or domestic nature, with which the Chester county farmers' wives are not thoroughly cognizant, "from baking a buckwheat cake to milking a dozen cows," and if they do not practice what they understand in the present instance, it surely cannot be for the lack of the most tidy and convenient arrangements possible for the purpose.

And Mr. Rarey, missionary and expounder of kindness to the unruly horse, might here learn that his message of mercy has also been heard among those who care for a more lowly but now

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and then scarcely less troublesome class—"weak sisters" among the milch kine—whose impatience and spitefulness, so characteristic of their sex when not controlled by due self-restraint, in some cases leads to the regular upsetting of the milk-pail, if not to accidents still more annoying. This excessive activity in the muscles of the posterior limbs, Mr. Pritchett successfully overcomes by strapping up the fore-leg on the side on which the cow is milked, precisely in the Rarey method—it is found that so long as one leg is thus secured, neither of the remaining three can well be employed for kicking over either the person or the pail.

Among Mr. Pritchett's stock we should not forget the Chester County pigs, which are well up in the points of merit laid down by experienced judges.

Messrs. Hickman and Pritchett accompanied us for a pleasant drive to the scene of the battle of the Brandywine. The Birmingham Friends' Meeting House, used as a hospital during that sharply contested engagement, is yet standing; and the memories of the Revolution are imprinted on its flooring, in the blood stains still plainly perceptible, of those who were martyrs in the cause. Our day was concluded by a call upon David Woelpper Esq., near Chadd's Ford, who enjoys, like so many others in this region of splendid prospects, a grand perspective of hill and valley from his door. Here a twelve foot water wheel not only furnishes power for the farm machinery, but also pumps water for the dwelling and outbuildings; and the same labor-saving spirit of improvement, manifested in the adoption of such apparatus, was perceptible in the progressive appearance of all the farm and stock. Under the latter, we should again make mention of the Chester County pigs, one litter of which, eight or nine in number, was spoken of as having averaged 320 pounds weight each, at nine months old.

In returning to West Chester, we passed the farm of Mr. J. H. Osborn, but it was too late to call. Mr. O.'s farm buildings were awarded a premium last year for their excellent arrangement, the committee describing them as "models in every respect," and giving the following particulars in their report:

"The dimensions of the barn, built in 1848, are 80 feet long by 58 feet wide; of stone to square with frame front and gables; containing stalls for 7 horses, 5 cows, and 25 feeding stalls, with shedding attached, 35 feet by 58 feet, and 20 feet by 52 feet, with

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loft above for hay; and one for shelter, 16 feet by 80 feet; barn, shedding and yard covering a square of 115 feet by 110 feet.

"Mr. Osborn has all the necessary outbuildings on his farm, such as carriage-house and gear-house, with tool-house overhead; cart-house, with loft overhead for storing farming utensils; double corn-crib, with shelling floor in the centre; ice-house, hog-house, &c., &c., &c.

"The barn and house are both supplied with running water, from a spring-head sufficiently high for this purpose."

Among other points of interest passed by during the day, was the West Town School Farm of 600 acres. It is said to be conducted with a great degree of skill and success.

I may remark, here, the belief expressed by Mr. Hinman, that more butter *ought to be packed down* in Chester county for the winter's use and markets. There is a great prejudice in all that region against anything that is known by the name of *pot-butter*, arising from the fact that it is so often a synonym for all the wretched odds and ends of the year's churnings, put down apparently for the very purpose of obtaining as disagreeable and rancid a mass as possible. So strong is this prejudice, that Mr. Hinman justly argued that farmers there could never succeed in packing their butter well and selling it to advantage, until this old name and stigma of *pot-butter* are entirely abolished. The great trouble, he very forcibly insisted, with all who have tried to preserve their butter, has been *an endeavor to keep both the butter and the buttermilk;* and he took every occasion to insist that the latter should be entirely dispensed with, and the former become the sole object of the dairyman.

The butter in Chester county is shipped to Philadelphia as fast as made—two or three times a week, in many cases, from every farm. It is very commonly made by contract, as follows: The proprietor rents a tenement to a family, who milk the cows and prepare the butter for market, for three cents per pound, having generally included in the bargain, house rent, fire wood, and such other privileges as may be agreed upon between the parties at the time of making the contract. An additional price is also paid the tenant for other labor, such as for feeding and taking care of the cows—sometimes as much as $200 per annum extra.

Our first call, June 15th, was upon Mr. Charles E. Hiester, at "Edgewood," a farm he has now occupied for eight years—purchased in rather a rough condition, but already showing the

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marks of very great improvement. It embraces a hundred and fifty acres, thirty of which are in wood. During our stroll about the fields, we came upon one of wheat—a part sown in accordance with the customary rotation, after oats, and a part following a crop of potatoes—the soil and treatment of the two otherwise quite similar—and the difference in favor of the portion preceded by the potatoes was very distinctly marked by taller straw and thicker heads. Mr. H. has a flock of Cotswolds, principally from the Ware and Reybold stock, including about twenty-five breeding ewes; these sheep average with him, for yearlings, ewes and all, a fleece of about nine pounds per head. The common ewes, bought for winter feeding, give lambs in spring of one-half Cotswold blood, and these fatten early and reach a good size for the butcher about harvest time. Besides a total flock of about sixty young and old, Mr. H. has twenty to twenty-five cattle, some of these very good—also Chester County pigs; his plowed land was 15 acres in wheat, 13 in corn, and 12 in oats. Here I should not omit to mention the garden and strawberries—the latter of which were as handsome specimens, in size and quality, as any that we had elsewhere seen, and the cream accompanying them certainly spoke well in richness for the dairying merits of Chester county Short-Horns.

We next proceeded to Mr. Francis Strode's, where we again found some excellent specimens of the now widely disseminated "Chester county pigs." It is claimed for them. that, for food consumed, they return a product equal at least to that of any other breed, often attaining a weight of seven or eight hundred, and sometimes of nine hundred pounds. They are of a pure white color, with thin skin, much length and depth of carcass, offal comparatively light, and well larded inside; and they have been so long and carefully bred by some of the farmers of the county, as to possess much of the power of a distinct breed in the improvement of common swine.

Thence we "fetched a circuit," enabling us to appreciate that predisposition to irony, which, according to some authorities, forms the most salient feature in American humor, as we pass through "Feather-bed lane"—so called, as the reader will already have imagined, from its being anything but soft and easy for either team or carriage—and to command another of those extensive rural panoramas, hitherto so many times referred to, from the hill beyond—at length passing through several fields to

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reach the house of Mr. Lewis Sharpless, from whose piazza the battle ground of the Brandywine was again spread out before us in the distance. Here especially I had an instance of the *cleanliness* already mentioned as a prominent characteristic of Chester county farming, and there are few tracts of land of equal extent more productive, I was told, than the hundred acres owned and cultivated by Mr. S. Said the farm committee of the county society, after reviewing this farm three or four years ago: "they found the fields laid off in uniform size, and divided by fences straight and upright, and well set with grass; his corn of even growth, with luxuriant fodder and heavily eared. Though nearly three weeks have passed since we have had rain, the pasture fields were clad with a rich and abundant covering of nutritious herbage, almost as fresh and verdant as in the early summer months, while the scrutiny of your committee could scarcely point out a noxious weed throughout the fields or in the fence corners; in fine, the committee point to this highly cultivated farm as an exemplar for the rising generation of farmers; here they will see exhibited the fruits of the experience and observation of half a century, and of the highly intelligent and practical mind of the veteran and energetic farmer."

The farm of Mr. S., as above intimated, contains about one hundred acres beside woodland, and the ten acre corn field and other crops we went to look at, afforded abundant evidence of the sincerity of the committee's compliments. He "cultivates about 10 acres annually in corn, 10 in oats, and 10 in wheat; mowing about 25 acres. His average crop of wheat is about 30 bushels to the acre; of corn, 75 bushels; of oats, 75 bushels; and he estimates his crop of hay in 1860, at the high figure of 2½ tons to the acre, though the average yield one year with another will not exceed two tons. He applies annually between 500 and 600 bushels of lime, and about three tons of plaster. The farm is a grazing farm, and the average number of cattle and horses kept annually upon it is about forty."

After leaving Mr. Sharpless, we passed the excellent barn and pleasantly situated residence of Dr. Biddle; and, beyond, a field of 15 acres—upon whose farm I have forgotten—of which I was told that in 1859 it produced 80 bushels of corn per acre; in 1860, 50 bushels of barley, and, as we looked over the fine growth of wheat in which it was this year standing, we considered it good for at least 30 bushels of that grain the present season.

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The opportunity of seeing so much of Chester county farming, I have already ascribed to the kind attentions of D. B. Hinman, Esq., President of the County Society, and I should add that for the ability of going over so much space in so short a time, I was indebted to the activity and endurance of his horses. With J. L. Darlington, Esq., as consulting guide and pilot in general, we were thus enabled to make the best of our hours each day, but the visit which came next in order to those above described, proved by no means the least pleasant or interesting of them all, to wit, that at the residence of Mr. Hinman himself. Here we found a most commodious barn, improved stock of several kinds, and other evidences of good farming. The barn, to begin with, is 87 by 130 feet, and contains almost, if not quite, every convenience that could be desired under a single roof, and, beyond the ordinary demands of a barn, extensive accommodations for poultry, of which there is quite a variety kept. Its arrangements are similar to those already alluded to, as characteristic of the best barns of the neighborhood, with a large lofty shed attached, enclosing a cattle yard, and having piled beneath it the winter's manure in tidy shape for rotting to good advantage. A pipe, carrying water from the eaves of the shed, is suspended above the manure heap, so that if there seems to be danger of its heating at any time or place, the water can be conducted to the required point; and the yard is made tight below so that nothing escapes. The liquid manure Mr. H. has preserved and experimented with separately, I believe, but I understood him to say that the results obtained from its use were such as to convince him that the best and most economical method of employing it was by means of absorbents in the ordinary compost heap.

The much talked of bronze turkeys, which owe so wide dissemination during the past two or three years to the noise they have made in the papers, Mr. Hinman has some excellent samples of, but had been so unfortunate as to lose a fine gobbler, quite lately obtained from Connecticut. I do not recollect having seen any description of the improved sort of *turkey pen*, so to speak, for it is not a *coop*, adopted by Mr. H. from the directions given by Mr. Ramsdell; it is simply an enclosure formed by four wide boards placed on edge, say 18 inches wide and at their full length, with a cover along one side of the square thus constructed, two or

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three feet wide, slanting enough to shed the rain. This gives a pen which the turkey hen can leave at will, but her chickens are prevented from straying out with her, since they cannot get over the sides, and so long as they are confined, she will not go far; at the same time they have ground enough to scratch, shelter from storms, and room for exercise in the inside. By the time they are large enough to climb in and out, there will be no danger to them from exposure, and probably both mother and young will be sufficiently accustomed by habit to regular feeding here, to be quite domesticated and less inclined to stray to any great distance.

In the pasture we found the Alderneys, which Mr. H. ranks as *the* cattle for a dairy country; he means to prove the opinion good, by obtaining the best, and has among others a charming young bull, a grandson of the noted Massachusetts cow "Flora" and "Beatrice," a cow imported by the Massachusetts society. The herd, moreover, includes two remarkable instances of fecundity at a very early age—a cow which had *twin heifer calves* when she was herself just *thirteen months and twenty days old*—and another cow *two years old*, with her *second calf* by her side, born a fortnight before our visit. Yon are two yoke of oxen, the perfect matching and excellent training of which, not less than their style and color, bespeaks a Connecticut origin, and it is a matter of no surprise to learn, in fact, that they are in some measure old acquaintances. They were purchased for Mr. H., I believe, by Mr. John T. Andrew.

The Cotswolds are a feature on Mr. Hinman's farm of scarcely less importance than the Alderneys. He has a ram and two ewes imported for him from Cirencester very recently by Mr. Howard, and his flock, altogether, now numbers about thirty head.

I have already mentioned Mr. Hinman's efforts to attract the attention of Chester county dairy farmers to putting down butter for winter sale, an experiment he tried very satisfactorily last year, and was preparing to repeat the present season. He sold in December, 1860, several hundred pounds of butter made during the preceding June and July, at thirty cents a pound, and thought that "if one-half of the butter made in the vicinity of Philadelphia during the warm months, was packed on the eastern plan, those doing it would relieve themselves of a vast amount of trouble and expense, and would considerably increase their income," beside greatly benefiting those who have not the energy to try

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the experiment, by enabling them to obtain better prices during the butter season, when the market is overstocked.

Mr. Hinman next conducted us to "Highland Home," where we made a brief call upon our occasional correspondent Mr. Joseph Cope, who is a veteran among good Chester county farmers, in addition to having been an early convert to the importance of possessing and breeding from improved animals. As long ago as 1839 he imported South Downs and Short Horns, having been, next to John Hare Powell, the pioneer in this good work in that part of the country. Some of the descendants of both the cattle and sheep were among those we had a brief glimpse of here—for our time was short—and at John and Francis Worth's, where we also made a brief call. The latter gentlemen have nearly fifty ewes, I understood, in their South Down flock, and among the Short Horns there is blood that has passed through the hands of Vail, Morris, Spencer and others of our best breeders. A farm of 97 acres, owned by one of these gentlemen, was keeping over a hundred sheep, and a dairy of half a dozen cows; and, if my memorandum is correct, the other farm, also of about 100 acres, was divided as follows: ten acres each of corn, oats and wheat, 18 mown for hay, 10 under wood, and the remainder in pasturage, on which 21 bullocks, some of them very fine, are now fattening.

From such details as these, in individual practice, a general idea can be gathered of the system adopted by the best farmers of a considerable area. So long as Agriculture remains in its present condition—a condition in which there is so much to be learned from example, and so little from any source to which practice does not chiefly contribute—the interest of the farmer will centre mainly in such facts as he can ascertain from the common daily experience of others, rather than in speculations, or even in abstract statements of the principles that are really involved in experience. Hence I cannot think it "labor lost" to present a view of the farming of any locality, however trivial its details may now and then appear, so only that the view be as nearly accurate as possible both in little things and large. We have now devoted considerable space to the agriculture of a region greatly favored by nature, and to some considerable extent at least improved by skilful culture; and while, as in any grazing and dairying country, we have been less concerned with the actual management of each crop, than with getting at the proportionate prominence it bears to other crops and to the amount of stock

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kept, such a record of the condition of farming in such a region, at least seems worthy of preservation, and may perhaps also be made, to some extent, practically suggestive in other places.

There are some items that occur to me as not having been included in the general views of the county and its agriculture with which I began. Among these, is the frequency of *tenant houses* for the occupancy of at least one family on almost every farm of much size. They are put up at a cost of from $300 to $400; and it is common to give the tenant, for his services, the house rent and the keep of a cow, together with perhaps $150 per year, and such other perquisites—so many bushels of potatoes for example—as may be agreed upon. I have already incidentally referred to this practice on the dairy farms; and I never find it in vogue to any extent without noting down the facts involved, and desiring to commend the system to still more general adoption through the north and east, both as a measure of relief for farmers' wives, whose share in the labors and credit of good farming should never be overlooked, and as calculated to secure in the end a much better class of assistants for the farmer himself.

Before leaving, I had a glimpse of the nursery grounds of J. L. Darlington & Co., established in 1842, on twenty acres of land, and now having nearly a hundred under cultivation, perhaps three-quarters in fruit trees and the remainder in ornamentals, and conducting an extensive business, especially to the south and southwest. The land is well adapted for the purpose, and its situation so near the many railroad lines that center in Philadelphia, render it accessible to any part of the country.

I also had the pleasure of calling upon Dr. William Darlington, now an octogenarian, whose accomplishments in botany and scholarly writings have made his name familiar among men of science in both hemispheres. His *Flora Cestrica*, originally published many years ago, at once attracted attention for its systematic and correct enumeration and arrangement of the plants of the county, so much so that when the late Dr. Bromfield, the distinguished English botanist, undertook a similar task in the Isle of Wight, he copied Dr. Darlington's system, and, in acknowledging the fact in his introduction, compliments Dr. D. very highly upon the success and usefulness of his labors. To my conversation with Dr. Darlington, I am indebted for the historical facts to which allusion has been once or twice made in these notes; and, to the map of the county, which illustrates his work,

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I mainly owe the means of describing its geological formations. Dr. Darlington was also kind enough to enlighten me upon several points in which I had been in some confusion as to some kinds of grasses—mainly with regard to the identity of the "green grass" of this region with the "Kentucky blue grass." This information was accompanied with practical examples from his garden and from the roadside, as we walked together to visit the rooms of the "Chester County Cabinet of Natural Science," an association incorporated in 1831, of which Dr. Darlington has always been a leading member, and whose extensive collections I am sorry not to have the space to refer to more at length. They include the birds, the minerals and the plants of the county—the last named collection now forming a herbarium of nearly 8,000 species, including many from distant climates and countries, as well as those indigenous to the neighborhood, and all arranged with such perfection that any one could be exhibited on demand as readily as a word can be found in a quarto dictionary.

I had also promised myself a brief review of the successful operations of the County Society, but the limits of this article have already been passed, and I can only subjoin the secret which its indefatigable Secretary, J. L. Darlington, Esq., says he has found to underlie the permanent prosperity of this and other such societies, namely, to "*interest the ladies.*" Their presence not only adds vastly to the interest of an exhibition and the household departments to which they contribute, to its usefulness, but if they are in attendance, he finds there is never any lack of the other sex, both as spectators and as competitors.

There are many other farms which my kind conductors, Messrs. Hinman and Darlington, mentioned, but where we had not time to call—such as those of Messrs. Lewis P. Hoopes, Caleb Brinton, Jr., Isaac Hays, M. B. Hickman, Caleb S. Cope, Wm. P. Townsend, D. B. Hinman, Jr., and others, whose improved stock, not less than their good farm management, it would have been interesting to examine. To Dr. Thomas and Wellington Hickman, Esq., as well as to D. B. Hinman, Esq., and Mr. Darlington, I should express my thanks for courteous hospitalities.

ALBANY, *July*, 1861.

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NOTES FROM THE VALLEYS OF THE CHENANGO AND SUSQUEHANNA.

By Luther H. Tucker, Treasurer of the Society.

Entitled, agriculturally, to a prominent rank among the "Highlands" of this State—intersected by fertile valleys—watered by pure and pleasant streams—less accessible and less widely known, from the fact of a somewhat sequestered position, than many districts possessing fewer natural resources—that region which comprises the border townships in the counties of Chenango, Otsego, Delaware and Broome, and which is drained by the river Susquehanna and its numerous tributaries, has perhaps scarcely the credit her importance really deserves, in the eye of the public at large. As her primitive forests have been cleared away, and her lands more and more largely devoted to grazing, dairying, and in some degree to grain-growing, the absence of railway facilities of transport and communication, has not prevented, if it may have retarded, her progress in prosperity and wealth, nor quenched, if indeed it has really checked, the spirit of enterprise, improvement and public spirit: the stranger is hardly prepared to find, at intervals of ten or twelve miles in these valleys, remote as they seem from our great channels of trade and travel, neat and flourishing villages of from eight hundred to a thousand or more inhabitants, many of them with water-power enough for extensive manufactures, but hitherto almost solely dependent upon the agricultural production of the surrounding country. The first-class butter which is carried from here to the fastidious consumer at New York, will probably have been purchased by him from his grocer, under the pseudo-stamp of "Orange County;" and he thus remains ignorant that he is indebted, for the luxury he enjoys, to the sweet grasses and well ordered dairies of Oxford or Bainbridge or Unadilla, instead of to those of the more widely famous "Goshen."

Although the winter is not the time to visit such a region of country to the best advantage, and notwithstanding other engagements prevented me from seeing much that I should like to have

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noticed, and compelled me to examine very hurriedly all that I saw—nevertheless the old habit of jotting down what notes I can, enables me to contribute a brief sketch of several very pleasant days among the farmers of the different townships I have alluded to above; and I do this only with the understanding that the many friends to whom I was indebted for kind attentions, shall pardon the omissions and imperfections they cannot fail to discover in what I have to offer.

Binghamton, a place of eight or ten thousand people, is situated, as will be remembered, at the junction of the Chenango and Susquehanna rivers; and taking the railway extending thither from Syracuse, I left the train at Chenango Forks, about eleven miles above, and proceeded up the valley of the Chenango, exchanging the steam-whistle for the more musical jingling of the sleigh-bells. Entering thus the southwest corner of the county which this river has baptized with its own name, and passing for a considerable distance upon the very bank of the Chenango canal, our first views include an uneven upland whose rolling summits are several hundreds of feet above our road, the valley itself varying in width from something less than a mile to a still greater expanse of fertile flats—a fine farming country, in which the hills are now disputing with the alluvial plain for the preference in growing either grain or grass. At the village of *Greene*, centrally situated in the township of the same name, I had time only for a passing exchange of greetings with Dr. A. Willard, an old and active friend of agricultural improvement, while, if it had been possible to follow the bent of inclination, I should have been glad to make the acquaintance there of many others—including, for instance, such farmers as Geo. Juliand, who cuts, I was told, in the neighborhood of three hundred tons of hay, and whose long established experience and reputation as a judge and dealer in cattle enables him to carry on a business in this direction, involving the purchase and sale of a drove of from one to two hundred head, at intervals of from ten to twenty days throughout the year.

From Greene we proceeded direct to Oxford, the drive from "the Forks" being in all about twenty-two miles, the sleighing excellent, although upon a very light fall of snow, and the day as bright and clear as possible, and quite as cold as could have been desired. Oxford has a spacious public hall, in which in the evening there was a good gathering of the farmers of the vicinity,

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whose questions, at the conclusion of my lecture, manifested a deep and intelligent interest in the improvement of our agriculture and the problems it involves.

These questions led me in turn to make various inquiries, during the conversation I subsequently had with Mr. Packer, an ex-president of the county agricultural society, and others. It is thought that the permanent grass is here superior in quality on the hills, to that grown upon the flats, although the latter sometimes exceeds the former in quantity produced. Mr. P. mentioned, as an example of grass land management, a meadow that was seeded down twenty-two years ago, top-dressed every alternate year with barn-yard manure, carried out in heaps during winter and early spring, and spread as evenly as possible about first of May—say from ten to twenty not very heavy sled loads per acre—followed with a sprinkling of plaster, perhaps two cwt. per acre, which is in almost universal use and exerts the most beneficial effects. An average hay crop on land thus treated, year with year, is probably at least a ton and a half—indeed, it was thought that the best farmers would average fully two tons, the common custom being to cut one crop and feed off the aftermath, according to the season. The size of farms here will average perhaps a hundred and fifty acres, running from 80 up to 200, and in some cases, much larger ones; 150 acres will possibly keep, on the average, from 25 to 28 cows in milk, and the farmer will probably raise eight, ten or a dozen calves, and make a ton or two of pork. In former times considerable attention was paid here to fine wooled sheep, but the increasing importance of the butter manufacture has driven them out, and there are now comparatively few sheep of any kind retained. All southern Chenango makes butter very largely, the grain grown being chiefly oats and Indian corn, the latter ground for the cattle and for fattening the swine, while the former is also used for the horses and other stock. The general character of the soil is that of a clayey loam, but in the northern part of the county it is more sandy, and more grain is produced, and cheese is more a staple than butter. It is becoming quite frequent for farmers to sow an acre or two of corn broadcast about the first of June, to cut for fall feed if required during August and September, or allowed to stand till frost comes and then cured for early winter use.

As to the product of good dairy farms, Mr. John Shattuck, who

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resides just over the Norwich boundary line, was kind enough to give me the following statement with regard to the number of cows kept by him in 1860, and the amount and value of the butter made:

THE DAIRY OF MR. JOHN SHATTUCK, OF NORWICH—1860.

"Whole number, 30, of which 22 were full grown cows and 8 heifers; 7 two years old, and 1 three years old. They commenced dropping their calves the first of March, and the last one about the first of June. The cows were fed what good hay they would eat, and about one quart of corn-meal per day each, from the time they dropped their calves until they could get their living on grass; and this fall and winter they have been fed on cornstalks and hay. I sold four cows early in the fall, that I think would have made 100 lbs. butter to the present time.

Amount of butter sold, 5,378 lbs. at 25c.		$1,344 50
Amount of butter used in family and on hand, 350 lbs., at 25c.		87 50
Nine calves raised on skimmed milk, and sold at $5 each		45 00
One calf raised on skimmed milk, worth		20 00
20 deacon skins sold for 6s. each		15 00
14 spring pigs, bought the last of April, cost $30, total weight 3,036 lbs., sold at $6.50 per cwt.	$197 34	
Fed $25 worth of corn	25 00	
Total value for milk fed	$172 34	172 34
Total amount		$1,684 34

"Making a total average to the cow, heifers included, of $56.14. Calling the eight heifers equal to five cows, which would be about a fair average, would give to each cow $62.38. Total quantity to the cow, 190 lbs., and calling the heifers as above, it would give to each cow 212 lbs."

[Mr. Shattuck has since furnished the statistics of his dairy for the season of 1861, which I also subjoin, as follows:]

MR. SHATTUCK'S DAIRY IN 1861.

"The number of cows I have milked this season was 23, up to November 1st, when two were sold. I find, by reference to my memorandum, that the first tub was filled March 30th. I have kept no account of the time the cows came in, but from memory I should say mostly in the month of April, some in May, and one or two quite the last of the latter month.

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Total amount of butter made	5,130	pounds.
do do sold	4,846	do
Leaving amount used in family and on hand.	284	do
Total average per cow	223	do
Total amount of sales of dairy, 4,204 lbs, at 23c.	$966	92
Spring and late fall butter sent to New York, 642 lbs., total amount	111	94
Total amount used and on hand, 284 lbs., at 23c.	65	32
Fourteen deacon skins, sold at 4s.	7	00
Nine calves raised on skimmed milk	35	00
Value of pork raised from dairy slops	100	00
Total amount	$1,286	18

Which gives $55.92 to each cow; and taking out what we have used, leaves $53.08 actual sales to each cow.

"No allowance is made for milk and cream used in family, which has consisted of eight persons most of the time during the season. I received the first premium on butter at the Oxford Fair, 1861.

"If I were to say anything in regard to dairying, I would advise most farmers to keep *fewer cows, and keep them better.* The longer I dairy it, the more thoroughly I am convinced that a less number of cows would yield a much better profit than overstocking does. The truth is, that every cow should be kept so as to yield her utmost quantity of milk in order to get the largest profit; and in order to do that, they must have all the feed they want, and that of good quality during the milking season.

"I think one important thing in the care of cows, is in keeping them sheltered in the cold fall rains and frosty nights. And a few roots fed whilst changing from grass to hay, helps to keep up the quantity of milk very much. I would recommend in the dairy districts a more thorough attention to the breeding of stock with reference to their milking qualities, which I think might be greatly improved. If we desire and expect a choice herd of cows, we must breed with special reference to the points and qualities we wish to develop."

I should remark, in passing, that I was unable to visit the town of Norwich at all. I should have been glad to see many of its farms and dairies if time had allowed.

It was Tuesday night (Jan. 22) that I spent at Oxford. The next day, with President A. J. Sands, of the Bainbridge Farmers' Club, I placed myself in a light cutter behind an active team to cross the hills that separate the Chenango and the Susquehanna—

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the day again bright, clear and cold enough to constitute almost the perfection of winter weather. The distance from Oxford to Bainbridge I think is about fifteen miles, mostly up hill or down, although the acclivities are not generally very rapid, and a majority of the hills are said to be arable even to their summits, —bringing us by degrees into a country, as Dr. Sands remarked, more recently transferred from the hands of the lumberman into those of the farmer, its valley lands, many of them, none the better for a lumberman's style of farming, and its hillsides as yet scarcely as well rid of their stumps as they probably will be ten or twenty years hence. It has been found, now that the timber has been cut for quite a number of years, that the land longest cultivated appears to be growing *wet*. In grass, for example, the wild sorts that are fond of cold, soggy spots, are becoming often sad intruders where good hay has heretofore been produced. The value of the land is not often such as to encourage one in undertaking drainage of a very expensive kind, but it appears to have been advantageously tried in several instances, and I suppose there is no better remedy to be recommended.

After accomplishing perhaps two-thirds of our distance, we called, in passing, upon Nelson Ireland, whose farm of about 240 acres lies in the western part of the township of Bainbridge. Mr. I. is one of those who has drained to a considerable extent, having laid stone underdrains about thirty inches below the surface of eighteen acres of land, at intervals of about two rods. By the employment of the subsoil plow to loosen up the ground, fully one-third the expense of digging had been saved, and the estimated cost of the drain reduced to the vicinity of 31 cents per rod. The custom in plowing had been to penetrate four or five inches, but Mr. I. has been venturing deeper down, and has found the crops take kindly to the under stratum of light colored clay, after a winter's exposure of it to air and frost, the present yield generally better rather than worse, and a deeper plant-bed ready for future operations. He proposes extending the seven or eight inch system over a wider surface every year.

Mr. Ireland keeps ten cows and winters about a hundred sheep. Tried last year cutting cornstalks, straw and hay, and mixing them wet, as feed, and considered the labor of this preparation well repaid, but in the abundance of fodder the present winter has not cared to undertake the task. The sheep are descendants of some "New Oxfordshires" purchased four years ago, of J. T.

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Andrew of Connecticut, which are said to have given very good satisfaction, both as regards the full bloods and their crosses upon smaller sorts. The main sales from the farm are the butter made, and the young stock grown. With reference to the condition of farming now and heretofore, I was assured that it might be considered as progressive—the average of crops at the present time being rated at perhaps one-third larger than it was fifteen or twenty years ago, with the exception of potatoes, which have been running down in yield, and rye and wheat, which two latter crops, when sown on newly cleared land twenty-five years ago, produced as much probably as they do now.

Resuming our seats after a hearty farmers' dinner, we reached our destination, the residence of the Messrs. Juliand, father and son, at Bainbridge, before the afternoon had far progressed. Jos. Juliand 2d, is here endeavoring, upon a pleasantly situated farm well adapted for the purpose, to do his share toward the improvement of the stock of the adjacent country, fully believing that a calf sired by a first rate Short-Horn will more than repay the farmer for its extra cost, before many months pass by, and able to support his theory, I found by considerable practical experience in its workings. Together with several full blooded Short-Horn cows, he has a bull calf of good promise, called "Duke of Oxford," sired by Mr. Rotch's "Lord Oxford," of which latter I shall have more to say anon—while "Sultan," a bull of Mr. Rotch's breeding, sold by Mr. J. two years ago to our friends of the Wapping (Mass.,) Farmers' Club, did not take his departure without leaving a representative in "Young Sultan," a year old in April last, now weighing perhaps fifteen hundred weight, and bidding fair to equal the merits of his sire. Mr. J. also indulges his taste for pets in a rabbitry, including several varieties, and in other similar directions; his barn is worthy of particular notice and description, but I shall speak below of several prominent merits which it possesses, in common with two or three others I had the opportunity of visiting, only acknowledging at present my indebtedness to Mr. J. for the various measurements, which will appear in a subsequent paragraph.

The Bainbridge Farmer's Club, upon whose invitation I had first undertaken the trip, held its meeting that evening in the largest church of which they could obtain the use; I regretted to learn, however, that many even then were unsuccessful in getting places, while the interest manifested on the part of the whole

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audience, together with the fact that it included many farmers from a wide circle around, who had not previously taken part in the proceedings of the Club, led me to hope that the results of the gathering might be promotive of its interests, and tend to unite and strengthen the feeling of energy and enterprise which is already producing its effects upon the agriculture of the Susquehanna Valley. After a session of nearly two hours, it was announced that the subject of the lecture, the improvement of American farming by comparison with that of Great Britain, would be discussed at length in regular club meeting Saturday night; and I am since informed that this meeting was the fullest and one of the most *earnest* in the records of the club, which has been in existence now for several years. It would have been a source both of instruction and pleasure to me to hear through the medium of such a debate, how far my own deductions and hints had harmonized with the practical experience and judgment of those who took part in it.

The next morning we had only time for one or two hurried calls—at the farms of Dr. A. J. Sands, Messrs. John Banks, Jos. Bush, Cyrus W. Hickox and Robert Pearsall—while the original plan, defeated for lack of time, included a number of others, for instance, Messrs. A. N. and N. A. Humphrey, Ira Hyde, Charles Bixby, Jerome B. Sands, etc. More than anything else, I was interested in the examination of the large and commodious *barns* at the points we visited. That of Dr. Sands, the newest, is of more expensive character than the others, more so perhaps than many farmers would care to build, but the money has been laid out in order to secure the utmost number of conveniences for the farmer, the comfort of his animals, and the perfect protection and preservation of the manure. I shall not attempt a description of it beyond referring briefly, among its more prominent features, to the loose boxes for the horses, with their facilities for both feeding and watering; the excellent cellar arrangement for stock; the poultry room; the attention given to tight floors and complete ventilation, together with the tasteful and commanding exterior. The teams drive in above, and what lifting remains to be done in stowing away hay, is performed by a horse-fork, while it is proposed hereafter to utilize the power of an adjacent stream by making it unload the hay, do the farm threshing, grinding, stalk-chopping, &c.

In other instances similar improvements are also carried out,

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in one or two by the remodeling of old barns, as at the farms of Messrs. Banks and Juliand, in which cases a most remarkable saving both of time and feeding material has been effected over the old plan of two or three scattered buildings, with open yards draining out all the virtue of the manure from under the eaves into roadside ditches, watering the animals once or twice a day at some almost inaccessible point, and requiring the services of a man in winter to look after things well and satisfactorily, whose assistance can now be almost wholly dispensed with.

One feature in these barns was *entirely new* to me, and seems worthy of minute description, although I may fail, even with the aid of a sketch, to make the matter as clear as could be desired. The basement, which in side-hill barns runs partially under ground, opens with sliding doors that may be closed at pleasure, on one side into the yard; there is no floor, with the exception of the well compacted and water-tight soil, and on this floor litter is abundantly scattered, and here the cattle lie down night or day as they choose, the deposit of manure remaining undisturbed as long as necessary, but unfrozen, except crusted over at top, so that teams may drive in and cart it out during the coldest weather if the accumulation becomes too great. When we turn to the *feeding arrangement*, which is the novel part of the whole system, we find it consists of a series of *open stalls*, as they are called, constructed as shown in the engraving, in two rows face to face—perhaps ten or twelve stalls, or even more, in each row—with a wide manger or feeding way between, into which the fodder or meal, or whatever the cattle have, is admitted from above, the ends closed by moveable boarding, so that it may be swept out if occasion requires. These stalls are too narrow for the animal to lie down in at all, and each goes out and in at pleasure. The floor slopes about two inches from the head backward, and in going out and in the animal cleans out its own droppings, so that no labor is required in this respect. The triangular space through which they put their heads into the manger is too small to admit of their getting their feet into it, while, by the projection of the side of the stall fifteen or sixteen inches into the manger, they are completely prevented from interfering with one another, as regards the head and horns. The cattle are never tied in the stall.

The first objection urged against this system before one sees its operation, is that the cattle in the stalls would be injured by

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others' "hooking" them, and some have said that no printed description of the open stall would convince any man that such would not be the case. The truth is, however, that *the elevation of the stall floor* sixteen to eighteen inches above the ground, a stick of timber or other step being provided, as shown in the accompanying cut, prevents this hooking, because the animal outside, to get at the one inside, must put its forefeet upon the step, thus raising the head entirely out of the downward position in which it must always be put for "hooking" purposes.

The advantages claimed for the system, are the wonderful saving of labor effected in feeding and cleaning out, as compared with other stalls; and, as compared with feeding boxes, in the fact that each animal is protected in obtaining all it wants, and "underlings," instead of being forced to eat the scanty leavings of the stronger beasts, have an equal chance at the first and best. Indeed, when the cattle get to running around and annoying one another, the weaker will go into these stalls for protection at once. The system is thought more healthy also, because water troughs are kept close by the stalls, and the animals while at their food are seen to come out at intervals for a drink, and return to the manger; while it is noticed, on the old plan of taking them out to water at night and morning, that, after a night's abstinence and a dry feed with daylight, they will fill themselves so full of the almost freezing liquid as to chill the whole system, and perhaps prevent their drinking much when again taken out at a later hour. They would then really have but one long drink during the twenty-four hours, and it is easy to see that this cannot be as natural or healthy as it is to leave them free to quench their thirst before it becomes immoderate, and as often as nature may dictate. Salt is also kept within their reach, as well as water; the floor is littered whenever necessary, perhaps twice a week; the manure from the horses comes down into the same place, and not a drop or an atom of the whole is lost.

With the end view of a range of these stalls, as engraved for *The Country Gentleman*, having one of the stalls left open to show its interior, I give the dimensions as they are constructed by Mr. Juliand for ordinary cattle, and of smaller size for young stock. The stall partitions may be carried up to the floor timbers above, or not, as is desired, and the whole can be very roughly and cheaply, or quite neatly and substantially built, according to one's preferences and means. It was Sutton Pearsall, of Morris,

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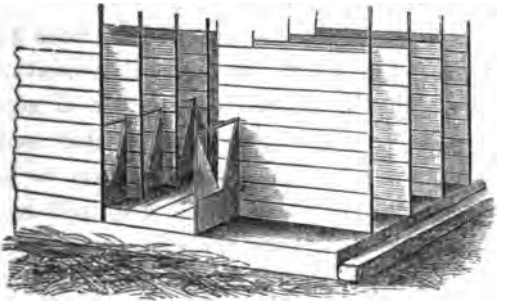
it is said, who first got up this kind of "open stall,"* many years ago, and it has since been growing in popular favor until it is now adopted, as I was told, in nearly all the better and newer barns in this locality, although scarcely, if at all, known anywhere else.

The barn subject has occupied so much of my space, that I shall have room but for a word with regard to the excellent Devon stock of Mr. John Banks, of which it is sufficient to say that it comes from the well known herd of R. H. Van Rensselaer of Morris—and my reference must be equally brief to the enterprise he has shown in the management of his farm affairs during the few years it has been under his charge—his hay crop, for instance, being now nearly the same in amount, I understood, as in former years, although obtained from only about *one-half* the surface—the other half having been let for pasturage. Here also I saw some of the Connecticut stock of Bronze turkeys, and was told that the weight of four young ones, hatched in June last, would now average 21 lbs. each.

The Susquehanna Valley Agricultural Society has its headquarters at Unadilla, where it has held three or four annual exhi-



* DIMENSIONS—STALLS FOR COWS, OR STEERS OF MEDIUM SIZE.

Partitions between stalls—3 inch scantling, boarded on each side—distance apart 2 feet 10 inches from centre to centre.

Length of stall 5 feet 6 inches to the manger—side of stall projects into manger 1 foot 4 inches.

Manger—6 feet 6 inches wide from centre to centre—1 foot 11 inches high on outside—1 foot 1 inch high on inside.

Floor—16 to 18 inches high from ground—with stop—slopes about 2 inches backward from manger.

In the engraving, the end is taken out of the manger to show the heads of the opposite stalls, and the first stall at the right hand is represented without siding—the triangular space through which the cattle insert their heads into the manger is 4½ inches wide at bottom, instead of coming quite to a point, as might be inferred from the cut.

DIMENSIONS OF SIMILAR STALLS FOR CALVES.

Width of stalls, 2 feet, centre to centre—length, 4 feet 4 inches to manger—width of manger, 4 feet from side to side—height of manger outside, 20 inches, inside, 12 inches—sides of stall project 11 inches into manger, to keep each animal's feed separate when so desired.

An aperture in the floor above corresponds in width with the manger, through which hay, &c., is put down for the use of the cattle.

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bitions with increasing success. Its members, and those of the town society of Bainbridge, co-operate heartily with one another, and the best of feeling exists between them, as well as between the two towns in other respects. The drive from Bainbridge to Unadilla, up the river valley, is one of about ten miles; there had been quite a deputation from the latter place present at the lecture the night before, and a party from Bainbridge returned the call by accompanying me to Unadilla Thursday afternoon, after the sight-seeing described in my notes last week was concluded. The officers of the Susquehanna Valley Society, for 1861, are: President, Ira E. Sherman; Clark I. Hayes, treasurer, and R. W. Courtney, secretary.

Our first call the next morning was upon Mr. Hayes, whose health had not admitted of his going out at all for some days previously, but who nevertheless undertook the task of showing us the improved stock in which for several years past he has been taking so much interest. Although engaged in banking, Mr. H. carries on a farm of 170 acres, and his father, who died in 1857, at the advanced age of more than eighty, was one of the early pioneers in this part of the State—his business, for a long period, consisting of grazing upon an extensive scale—buying steers at two years old, which could then be had at from $12 to $20 per head, and disposing of them after a twelve-month, at from $50 to $75 per pair. In the purchase and sale of stock, his experience thus became very great, and the practice acquired by Mr. Hayes, in acting for his father, enabled him to judge in what respects improvement was especially required in the common cattle of the country, and, together with a natural taste for the subject, was an excellent fitting for his present undertakings as a breeder. He began with Short-Horns three or four years ago, rather with the view of bringing improved blood more within the reach of the farmers of the Susquehanna Valley, than for any other purpose, and his purchases have been of the best "blood," and such in individual character as he thought likely to prove of the greatest practical service. He has had some excellent animals from the importations and breeding of Dr. Wendell, of Albany, F. M. Rotch, Esq., and Messrs. B. & C. S. Haines—the present herd including nine females, and young stock sired by "Marmion" and "Lord Oxford," and thus or otherwise running back to a long line of "distinguished ancestry."

Finding, however, that in a dairying country other crosses are

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sought for, and in order that his neighbors, if they could be induced to breed with greater care, might exercise a choice of their own in the premises, Mr. Hayes was subsequently induced to purchase an Ayrshire bull and cow, "Dandy 7th" and "Maggie," from E. P. Prentice, Esq., of this city. From this cow he has now had three heifer calves in succession, and expressed himself highly pleased with the result of the cross-bred or grade Ayrshire stock for dairying purposes—mentioning casually, as we were canvassing the question of breeds, that a number of Scotch dairy farmers, at a distance of thirty miles away, have hired the bull for the past two years at $75 each season, and that a half-blood Ayrshire heifer of his breeding, and now owned by Mr. S. L. Wattles, has produced, during its first year in milk, over 200 lbs. of butter. Mr. Prentice's experience has shown that Ayrshire milk has given one pound of butter to six quarts of milk, while with ordinary cows Mr. H. doubted if fully twelve quarts would not be required; in addition to which, the Ayrshire has an advantage over the Short-Horn in the fact that it appears to bear harder feed and treatment, although experience in the results of dairying with Short-Horn crosses, leads Mr. H. to entertain a high opinion of them for the purpose, under proper keep.

With regard to the age at which a heifer should be permitted to come in for the first time, the opinion is a common one that the younger she is, the more fully her milking properties will have the opportunity of development; but this is doubtless at a sacrifice in regard to size, &c., and I learned that the dairymen occasionally, after obtaining a calf from a two-year-old, allow a year to pass by without breeding from her again, in order that greater maturity in frame may be obtained. This matter, however, brought up as it was by the mention of the Ayrshire heifer above alluded to, has led us away from the barn-yard and stables, where we also saw two Alderney heifers, bred by Taintor of Hartford, and a young Alderney bull, which may be christened "Zouave," from the same herd, sired by the bull "Splendid," now owned by Mr. Rotch. This will be an infusion of blood calculated, I can but think, to add a fraction to the already good prices at which the butter of this region is marketed in New York; and the three breeds, Short-Horn, Ayrshire and Alderney, being thus placed, as it were, on trial side by side, I trust that Mr. H., either personally or through the society of which he is so prominent a member, will endeavor to encourage carefully

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conducted experiments as to the respective improvements which each is capable of bringing about in a butter-making country. This was a topic of so much interest, that the *Essex pigs* we might have seen were overlooked, and other points in farm management had scarcely a word of notice in our conversation.

We made several other calls—one upon Mr. H. C. Gregory, whose barn we had noticed in passing it the night before, and who was one of the originators of the society—another upon President Sherman, whose 300 acres or more of land lie across the river in the town of Sidney, Delaware county; but the time was short, and our stops were necessarily brief; and we had to give up seeing many good farmers, where we should have much enjoyed a passing visit—such, if I may venture to mention names, as Ex-Presidents David Hough and David Lee, M. B. Luther, Messrs. Peck, Chapin, and others. And in the afternoon, in going to Franklin, where there was a lecture before the Farmers and Mechanics' Club,* there were re-called the names of such dairymen as S. L. Wattles, whose butter I was told always rates as A 1, and who aims to reach about 250 lbs. per cow, and Walter Wattles, Seth and Thomas Bartlett, William and Ralph Dewey, &c., who yield to very few, either in the quality or quantity of what they make.

This drive from Unadilla to Franklin and back again, was one of the pleasantest of the week. Accompanied by A. B. Watson, Esq., to whose attentive kindness in the feeble health of Mr. Hayes, we owed the use of the same sleigh and horses whose services we had enjoyed during the morning, together with our old friend, S. G. Cone, Esq., and Mr. Fellows, of the Unadilla *Times*—we made the ten miles thither in seventy odd minutes, up hill and down, following for some distance the course of the Ouleout, a stream still known by the name it bore in aboriginal times—its meaning, "the leafy brook," not yet forgotten, and the justness of the red man's poetic nomenclature amply vindicated, I was assured, as Nature, with each recurring spring, re-drapes its overhanging boughs and festoons anew its abrupt ravines—ravines so nearly bordered here and there by our road, that reminiscences arise as we pass them, of up-sets in the old staging days, and practical trials of their height and steepness not inter-

* This Club is of very recent organization—officers for 1861:
President—Beriah L. Bowers. Vice-Presidents—M. S. Kellogg, W. M. Mills, Eli Hopkins, Hiram Whitney. Secretary—Henry E. Abell, Editor of the "Franklin Visitor." Treasurer—Harvey Mann. Directors—S. F. Miller, Elijah Roe, Enos Munson, P. G. Northrup, J. Edgar Payne.

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esting to contemplate over an icy precipice, even of a moonlight night. And, after the evening at Franklin, and a start at eleven or thereabouts, we might characterize the return drive as a match with midnight for Unadilla as the goal, in which, thanks to our steeds, we came out gloriously ahead. I mention their performances, be it noted, in view particularly of what they were called upon to do the succeeding day, although being constantly on the go from nine or ten in the morning until dinner at two, with twenty miles after supper, was by no means a bad day's work.

The following morning, then, they were again awaiting our somewhat tardy movements, and it was not until within an hour or two of noon that Mr. Hayes and myself were finally under way for Morris—preferring the longer drive of two or three and twenty miles, lest the more hilly and direct road should prove a less advantageous one, under the recent fall of snow. This route carried us near the farms of Messrs. T. C. Monroe, J. Roe and M. G. Osborn, which were successively pointed out or referred to among others as we passed along, and, farther on, reaching a bold bluff overlooking the Unadilla river, we could then descry the well manured fields of Edward Peck beyond, and those of Z. Curtis upon this side of the stream. The Unadilla forms the western boundary of the town of Butternuts, the flats along its course being generally narrow, and the highlands bordering them occasionally quite abrupt. We go by the residence of Richard Morris, and, beyond Gilbertsville—whose founder, now more than eighty, can still actively enjoy the prosperity of his namesake village—the old Morris place, the memory of whose late proprietor is a part of the early history of all this region. After striking Butternut creek, upon which stream stands our place of destination (Louisville village, Morris post-office), there is one point of melancholy interest in the way-side monument that marks the spot, where, many years ago, was thrown from her horse, and thus suddenly killed, a sister of that great novelist, who contributed, more than any other American writer, to familiarize the whole reading world with the scenes of the wigwam and the council-fire, and whose works now constitute, here and abroad, a monument to the name of Cooper, which will endure after sculptured records are illegible, and, from Mohawk to Oregon, the last tomahawk is buried, and the last pipe of peace gone out.

R. H. Van Rensselaer, Esq., whose herd of Devons has been so

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long and favorably known, although having withdrawn three or four years since from his former prominent position as an extensive breeder, has lost none of his fondness for their uniform color and compact symmetry—a taste he still gratifies in caring for a few of his old favorites—among them imported "Lady Bird" and her descendants, and a very pretty lot, male and female, of their younger but scarcely less note-worthy relatives. Occasionally able to spare an animal or two from their number—the possession of a bull or cow from the "Van Rensselaer Devons" is enough among the farmers, far or near, to give their cattle a stamp of superiority which few care to compete against at the town and county shows. Among his other pets are the Grey Dorkings and the Lop-eared rabbits, for which Mr. V. R. and his neighbor, Mr. Rotch, have shown a marked preference, resulting in numerous importations of both during years gone by, and in their wide dissemination throughout the country.

About half a mile to the southward, is the residence of Francis Rotch, Esq., an Ex-President of the State Agricultural Society, and his son, Hon. F. M. Rotch, whose duties in the Senate of the State, confine him at Albany at this season of the year. Mr. R., senior, was at home, and we had a pleasant call—surrounded in the library by the portraits of his farm-yard favorites, displaying in their execution the same skill which has been shown without, in the breeding and management of the originals. With regard to the stock, we must confine ourselves, as we have been forced to do in other cases, to limits much less extended than the importance of the subject really demands. In "Lord Oxford," by "Duke of Gloster," out of "Oxford 13th," we have a specimen of Thorne's Short-Horns, from the pedigree of which, much would be anticipated by those familiar with the subject. However great the anticipation, there could be no disappointment in seeing and scrutinizing the results of this pedigree as manifested in the animal himself. I do not know that I have ever seen an animal possessing greater "style," a finer front, and leaving throughout less room for criticism—I speak of him from the impression made as he first stepped out of his "box;" and the mere fact that he weighs in the neighborhood of thirty hundred, will show that he is at least not deficient in point of size. But when on farther examination we find this size so symmetrically put together, and so many "points," from crops to twist, in which the development attained is remarkably good—the geometrical attributes of

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"solids," length, breadth and thickness, well carried out, and the "Oxford touch" in quality, combined with a fine roan in color—we begin to think the bull is one about which the public at large should be better "posted up."

An effort has been made to obtain him in California, whither Mr. Rotch has concluded heretofore several sales of very valuable animals at corresponding prices, but the amount offered, $2,500—which looks tolerably large in these times—had been *refused*, in the belief that there is no source at present from which the loss of the animal could be fully repaired; for while Mr. Rotch, with his nice views of what constitutes perfection, assured me that "Lord Oxford" did not *entirely* meet them—perhaps in the quarters for instance—I can only repeat what was intimated at first, that I know of very few bulls here or elsewhere which will reach a similar standard of general excellence. Among the cows, there are "Grand Duchess," one of the only four or five sired in this country by "Grand Duke;" "2d Grand Duchess," from whose calf, sired by "Lord Oxford," considerable expectations may be entertained; but we must pass these by, together with the Alderneys, with scarcely a glance—the bull of the latter breed, "Splendid," although exceedingly nice of his kind, scarcely bearing the contrast with Lord Oxford to particular advantage.

Of the return to Unadilla, over the hill road of eighteen or nineteen miles, and our prompt arrival there as the clock struck eight—horses fresh for ten more miles in another hour, if this had been required—of other attentions from my host, Mr. Hayes, A. B. Watson, Esq., and others, including the unexpected but none the less agreeable incident that had occurred on Thursday evening at "Kingsley's," a hostelry in which I found that American farmers could make supper speeches as well as their brethren in England, and manifest in them equal earnestness in the measures of improvement they have set about—of Mr. Gregory's drive with me back again to Bainbridge in the moonlight, and Mr. Banks' to Deposit on Monday morning, with much of this latter score or more of miles, among the higher mountains and wilder woods of Delaware—parts of the scenery, as we approach the place, reminding one not a little of views among the Scottish Highlands—with regard to all these points I have no space to speak at farther length; but there are one or two others which cannot be wholly omitted.

One of them is the fact that when one goes, at this period of

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the present century, forty odd miles away from the nearest railroad connection, as we were at Morris, he needs little more to convince him that better means of access ought to be provided. To reach a point 110 miles distant from Albany, on the proposed line of the Susquehanna railroad, I went over fully double this distance by steam and thirty miles or more farther by sleigh. I have never visited any section of the State which seemed to be more really wide awake in the effort for better farming, or to possess more public spirit in the advancement of such undertakings as the railroad in question, and I cannot think it inappropriate to express the earnest hope that other parts of the State will cheerfully concede something to one in which so little has ever been granted or asked before. Perhaps three-quarters of a million will not cover the outlay already made on the line of this railroad, which will probably be sunk unless some State assistance is accorded. Undoubtedly the road must eventually succeed, but in justice to those whose earnings have already been freely given to push it forward, and who are ready as freely to contribute more, if there is any certainty that the contribution will not be wholly thrown away, some measures should be taken to save the present scheme from failure.

The other subject remaining to be mentioned, which is more appropriate for the present article, was our passing visit Monday at Philo Kirby's dairy farm, in the town of Afton. His average of butter is from 150 to 180 pounds* a year, *on grass*—having reached one season 185 pounds. He churns by horse-power—employing four barrel churns at once, which will turn out altogether about forty pounds at a churning. The temperature he prefers, and which he is particular to secure, is 65°; he churns milk and cream together, which is *not* usual in the dairies here—and thinks this is the way to *get all the butter out*. His butter commands uniformly as much as anybody's else, and a little more than some, and the tubs we saw just on their way to market, were nice enough in appearance to justify this statement. He has a fine site selected for a new barn, in which I understood that he proposes to introduce water power to do the work.

ALBANY, *February*, 1861.

*This average, it should be added, is the amount sold for each cow, EXCLUSIVE of what was consumed in the families of Mr. K. and his son.

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THE AGRICULTURAL STATISTICS

OF THE

STATE OF NEW-YORK,

FURNISHED FROM

THE UNITED STATES CENSUS RETURNS OF 1860,

FOR THE

TRANSACTIONS OF THE NEW-YORK STATE AGRICULTURAL SOCIETY.

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

SOUTHERN DISTRICT.

COUNTY.	ACRES OF LAND.		Cash value of farm.	Val. of farming implements and machinery.	LIVE STOCK, JUNE 1, 1860.							
	Improved.	Unimproved.			Horses.	Asses and mules.	Milch cows.	Working oxen.	Other cattle.	Sheep.	Swine.	Value of live stock.
1	2	3	4	5	6	7	8	9	10	11	12	13
Columbia	347,840	52,027	$21,270,066	$727,351	9,009	7	15,503	3,876	9,362	77,158	28,008	$2,080,621
Dutchess	392,663	79,609	$0,005,990	945,810	9,770	45	23,960	6,242	12,858	60,910	33,798	3,137,733
Greene	226,744	105,560	9,975,640	311,164	5,468	4	13,424	2,404	8,223	20,091	8,284	1,361,402
Kings	16,006	1,031	6,247,950	134,210	1,543	61	1,411	28	99	34	1,880	215,171
New York	1,274	309	9,561,350	50,565	441	....	495	16	49	40	817	77,060
Orange	297,987	81,596	21,010,783	638,823	7,988	25	40,406	2,830	8,120	14,763	27,683	2,574,411
Putnam	94,726	35,244	6,874,210	184,420	1,960	3	8,997	1,900	3,219	4,658	5,948	750,020
Queens	115,564	43,549	18,090,150	703,184	7,258	200	8,721	1,482	3,941	5,079	14,207	1,348,919
Richmond	9,852	4,743	3,327,800	81,245	561	14	763	299	534	20	1,081	149,651
Rockland	41,342	24,994	4,693,250	114,093	1,883	100	3,039	480	1,652	1,218	2,530	359,705
Suffolk	149,182	215,071	12,641,940	378,493	7,332	159	10,568	1,416	10,310	19,520	17,834	1,314,027
Sullivan	139,295	185,682	5,202,980	209,637	2,648	54	11,263	4,864	10,874	10,844	6,037	965,698
Ulster	262,910	169,964	14,697,101	488,047	8,198	48	17,380	4,876	12,025	17,283	28,890	1,920,322
Westchester	234,071	25,072	35,661,624	668,945	6,567	47	18,956	4,943	5,161	6,957	18,848	1,953,644
Aggregate of Southern District of N. York.	2,329,458	1,024,453	$199,260,834	$5,635,937	70,616	767	174,886	35,656	86,427	238,575	195,145	$18,208,324

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

SOUTHERN DISTRICT.—Continued.

COUNTY.	PRODUCE DURING THE YEAR ENDING JUNE 1, 1860.								
	Wheat, bushels of.	Rye, bushels of.	Indian corn, bushels of.	Oats, bushels of.	Tobacco, pounds of.	Wool, pounds of.	Peas & be'ns, bushels of.	Irish potatoes, bushels of.	Sweet potatoes, bu. of.
	14	15	16	17	19	21	22	23	24
Columbia	15,017	547,902	537,113	1,118,589	720	266,220	3,474	492,791	.....
Dutchess	60,302	369,818	687,158	1,175,430	178,130	183,657	1,036	304,453	29
Greene	21,540	121,734	185,595	405,370	2,000	59,742	5,663	309,067	10
Kings	21,927	4,493	84,782	9,835	.....	.....	9,761	607,182	.....
New York	.....	.....	2,450	10	.....	.....	447	4,790	.....
Orange	34,658	233,848	538,743	512,137	170	31,248	924	215,106	1
Putnam	2,156	23,355	116,279	94,775	.....	12,801	1,004	66,741	.....
Queens	134,458	77,790	517,758	25,951	600	12,526	133,922	693,438	780
Richmond	2,076	5,451	46,865	26,335	.....	.....	377	25,756	1,311
Rockland	1,937	38,635	81,640	54,917	205	1,559	16	66,439	.....
Suffolk	174,943	66,853	560,042	374,726	5,000	53,013	2,658	285,272	367
Sullivan	4,126	131,205	87,649	180,599	522	28,654	1,282	185,299	.....
Ulster	11,594	322,691	375,002	579,153	6,435	48,909	1,270	313,953	6
Westchester	24,199	114,204	462,986	351,529	2,925	20,425	1,361	370,607	.....
Aggregate of Southern District of New York	515,934	2,057,979	4,284,062	5,141,356	196,707	718,754	163,197	3,940,899	2,504

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

Southern District—Continued.

COUNTY.	PRODUCE DURING THE YEAR ENDING JUNE 1, 1860.									
	Barley, bushels of.	Buckwheat, bushels of.	Val. of orch'd products.	Wine, gallons of.	Value of produce of market gardens.	Butter, pounds of.	Cheese, pounds of.	Hay, tons of.	Clover seed, bushels of.	Grass seed, bushels of.
	25	26	27	28	29	30	31	32	33	34
Columbia	9,040	156,825	$58,865	1,764	$24,873	1,401,954	71,330	81,256	39	495
Dutchess	3,366	77,901	92,189	3,302	20,880	2,134,209	40,553	100,077	22	689
Greene	2,679	141,113	51,000	705	8,110	1,294,099	21,300	75,433	40	274
Kings	.....	65	930	.....	319,134	124,158	.....	7,086	.....	.....
New York	.....	.....	200	.....	392,828	.....	.....	305	.....	.....
Orange	160	74,599	41,271	5,238	48,815	3,033,805	.....	98,170	1,215	547
Putnam	106	23,973	14,113	1,160	1,070	465,235	5,644	30,044	5	50
Queens	4,109	66,650	62,146	397	886,934	505,985	1,422	53,014	393	725
Richmond	785	1,042	3,712	.....	20,227	7,257	.....	7,515	.....	.....
Rockland	30	30,105	8,303	273	9,659	244,932	51	13,925	39	6
Suffolk	16,026	49,023	20,387	1,303	17,559	749,130	3,990	45,208	970	1,350
Sullivan	277	113,047	14,881	141	170	966,793	10,552	46,695	64	7,647
Ulster	298	153,441	34,870	1,597	34,499	1,834,078	100	80,922	849	870
Westchester	1,175	46,692	151,008	1,829	200,540	1,315,528	1,340	87,467	3	68
Aggregate of South. District of N. York	38,051	934,477	$553,825	17,709	$1,985,298	14,077,173	156,282	727,118	3,640	12,724

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

Southern District—Continued.

COUNTY.	PRODUCE DURING THE YEAR ENDING JUNE 1, 1860.											Value of animals slaughtered.
	Hops, pounds of.	Prepared hemp.	Flax, pounds of.	Flaxseed bush. of.	Silk cocoons, lbs. of	Maple sugar, pounds.	44 Molasses, gallons of, and from what made.		Beeswax, pounds of.	Honey, pounds of.	Value of home made manufact's	
							Sorghum	Maple.				
	35	38	39	40	41	42			45	46	47	48
Columbia	.....	....	1,281	20	....	2,901	....	335	990	42,679	$5,057	$443,341
Dutchess	1,714	....	1,190	57	....	5,526	....	298	747	19,567	2,241	620,418
Greene	12,760	20	255	19	....	111,832	....	2,484	1,293	42,840	3,910	209,924
Kings	15	....	.....	....	....	.....	....	.....	.....	175	.....	10,188
New York	.....	....	.....	....	....	.....	....	.....	.....	.....	.....	175
Orange	90	....	254	261	8	1,084	....	6	1,720	19,132	560	434,677
Putnam	19	....	.....	....	....	.....	....	.....	735	8,158	1,781	238,551
Queens	78	....	250	14	....	.....	....	.....	196	5,117	.....	232,655
Richmond	.....	....	.....	....	....	.....	....	.....	.....	.....	.....	.....
Rockland	59	....	.....	....	....	30	2	.....	58	8,969	22	61,426
Suffolk	93	....	20	....	....	.....	75	75	360	5,051	1,050	357,694
Sullivan	46	....	50	2	....	34,894	....	1,916	2,600	40,677	6,075	143,683
Ulster	5,515	203	6,031	164	....	48,048	....	1,808	3,212	45,924	7,503	387,846
Westchester	180	....	1	....	....	4	....	.....	175	6,885	323	428,376
Aggregate of Southern District of New York.	20,569	223	9,332	538	8	202,319	77	6,922	12,081	245,174	$28,442	$3,568,954

Additional productions of Southern District New York:

Gallons of milk sold	3,090,177
Value of milk	$74,371
Cabbages	1,280,400

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

Northern District.

COUNTY.	ACRES OF LAND.		Cash value of farm.	Value of farming implements and machinery	LIVE STOCK, JUNE 1, 1860.				
	Improved.	Unimproved.			Horses.	Asses and mules.	Milch cows.	Working oxen.	Other cattle.
1	2	3	4	5	6	7	8	9	10
Albany	246,097	58,745	$15,164,441	$671,060	9,133	17	13,759	1,907	7,862
Allegany	288,240	220,084	11,188,723	435,509	9,812	88	17,184	2,738	15,145
Broome	186,529	121,700	8,671,591	322,038	5,114	22	14,331	2,734	9,230
Cattaraugus	297,183	257,279	11,210,205	494,571	9,186	6	23,928	3,609	17,886
Cayuga	315,182	91,325	20,584,477	810,135	14,149	12	20,084	1,983	19,229
Chautauqua	388,154	210,093	18,419,422	693,855	12,497	59	38,930	3,515	21,788
Chemung	117,998	76,095	7,156,967	200,166	3,871	5	8,541	1,336	6,584
Chenango	397,520	150,737	14,750,987	694,497	10,611	19	42,094	2,928	22,546
Clinton	188,146	126,954	6,921,167	301,870	7,595	21	10,479	1,320	12,416
Cortland	206,749½	88,576½	9,846,985	378,467	6,737	16	26,722	1,566	11,169
Delaware	414,014	316,845	11,967,050	547,028	9,211	16	38,686	5,057	17,868
Erie	364,709⅔	166,828⅓	19,935,213	898,953	14,736	12	28,092	2,411	15,414
Essex	188,480⅓	255,782⅔	4,709,701	201,418	6,135	22	8,286	1,841	12,168
Fulton	133,108	66,970	4,656,050	202,733	3,870	2	9,398	1,002	6,920
Franklin	176,899	144,550	6,384,796	332,380	6,807	....	14,741	2,147	10,820
Genesee	222,718½	56,042½	13,885,417	485,045	10,572	21	10,343	762	12,681
Hamilton	18,589	32,930	321,197	20,581	336	....	918	316	986
Herkimer	279,398½	124,838½	16,583,798	596,937	8,631	2	41,566	822	13,434
Jefferson	510,920	293,490	25,542,788	866,040	16,343	6	59,512	2,114	23,554
Lewis	177,031½	108,960	8,264,029	370,217	5,222	1	26,373	2,195	9,552
Livingston	274,069½	93,009	15,987,573	654,441	11,678	33	12,149	803	17,692
Monroe	315,142	58,506⅔	26,209,862	899,561	15,905	23	17,073	1,021	17,624
Madison	278,960	80,788	14,251,554	535,187	10,240	48	26,223	1,347	16,398
Montgomery	200,359⅔	35,762½	11,632,029	452,369	7,650	2	20,424	731	11,861
Niagara	231,864⅔	71,796	13,398,984	527,530	11,712	2	12,691	980	12,528
Onondaga	346,119⅔	87,042½	23,959,117	851,939	15,446	16	24,940	1,579	19,584
Oneida	446,692	186,086⅔	23,931,888	819,215	15,030	28	48,510	2,972	22,338
Ontario	300,465	79,394	18,644,392	681,710	12,547	64	12,413	1,266	13,428

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Orleans	183,491	45,006	11,128,722	401,313	8,756	1	9,353	765	12,688
Oswego	246,676	146,449	12,585,540	560,213	10,471	15	21,033	2,426	13,797
Otsego	259,614	159,608	18,807,944	664,358	13,733	20	36,847	2,285	20,093
Rensselaer	276,007	70,809	17,774,563	634,731	8,529	3	16,787	2,359	9,806
Saratoga	316,746	103,866	14,290,241	530,587	9,919	5	16,035	2,522	13,466
Steuben	395,175	320,292	16,665,991	644,377	13,340	47	22,020	3,822	22,315
Schenectady	98,170	21,482	5,374,039	269,213	3,814	4	6,205	500	5,789
Schoharie	265,885	103,803	10,815,867	569,707	9,063	6	20,221	2,367	15,021
Schuyler	147,233	55,239	8,207,612	346,662	5,726	9	7,507	1,298	7,719
Seneca	150,357	33,630	10,855,867	381,248	7,169	5	7,196	593	8,847
St. Lawrence	571,972	278,130	22,442,701	942,808	19,915	4	68,734	4,232	35,273
Tioga	167,613	102,561	7,931,129	298,279	5,770	11	13,111	2,114	9,776
Tompkins	205,494	62,999	11,940,774	379,177	8,263	8	14,487	1,422	12,489
Warren	119,156	122,915	2,802,399	149,860	3,083	7	5,971	1,734	5,570
Washington	345,047	98,028	16,837,669	631,704	10,544	66	19,224	1,686	17,361
Wayne	180,237	63,639	10,951,988	371,727	8,679	2	11,263	998	11,193
Wyoming	252,236	94,150	11,173,680	429,598	9,275	8	16,621	1,328	14,099
Yates	154,531	48,227	9,325,620	380,745	6,284	2	7,748	593	8,726
Aggregate of Northern District of New York	12,046,938	5,592,099	$604,082,759	$23,530,758	433,109	786	948,748	86,046	641,410
Recapitulation.									
Northern District	12,046,938	5,592,099	$604,082,759	$23,530,758	433,109	786	948,748	86,046	641,410
Southern District	2,329,458	1,024,453	199,260,834	5,635,937	70,616	767	174,886	35,656	86,427
	14,376,396	6,616,552	$803,343,593	$29,166,695	503,725	1,553	1,123,634	121,702	727,837

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

Northern District—Continued.

COUNTY.	LIVE STOCK, JUNE 1, 1860.			PRODUCE DURING THE YEAR ENDING JUNE 1, 1860.					
	Sheep.	Swine.	Value of live stock.	Wheat, bushels of.	Rye, bushels of.	Indian corn, bushels of.	Oats, bushels of.	Rice, pounds of.	Tobacco, pounds of.
	11	12	13	14	15	16	17	18	19
Albany	33,633	42,238	$1,551,840	32,119	212,315	262,541	891,512	.....	2,062
Allegany	81,453	8,813	1,840,143	172,198	10,829	88,826	750,891	.....	5
Broome	22,052	8,657	1,181,135	67,497	55,127	149,329	540,233	.....	25,642
Cattaraugus	40,058	10,532	1,889,122	154,173	4,046	192,029	416,571	50	350
Cayuga	78,391	25,521	2,627,802	536,370	15,411	895,464	1,100,988	200	307,903
Chautauqua	54,503	17,904	2,813,331	235,427	2,851	442,937	394,550	20	1,875
Chemung	12,590	8,275	801,240	94,785	36,750	173,644	584,329	.....	455,831
Chenango	43,857	14,836	2,797,020	54,622	27,103	113,266	775,522	.....	15,592
Clinton	31,808	7,832	1,033,132	112,069	24,325	112,890	491,656	.....	13
Cortland	29,604	10,403	1,680,988	61,388	6,200	115,558	435,551	.....	401
Delaware	43,692	14,214	2,708,833	57,618	100,713	41,812	790,907	.....	835
Erie	42,767	20,656	2,467,395	149,398	40,653	444,364	684,866	.....	.....
Essex	45,265	5,923	1,016,169	69,390	19,638	94,194	256,325	145	50
Fulton	13,057	4,193	736,891	19,586	29,681	64,483	357,895	.....	25
Franklin	22,750	6,829	1,130,943	145,158	32,041	84,900	284,229	.....	.....
Genesee	37,829	21,538	1,788,740	301,144	38,480	643,220	385,217	.....	37,550
Hamilton	1,827	359	88,257	1,921	1,364	1,987	19,323	.....	.....
Herkimer	11,780	13,552	2,238,859	48,560	31,223	158,441	704,217	.....	65
Jefferson	34,665	18,071	3,441,925	574,369	47,134	435,645	571,813	.....	750
Lewis	9,605	8,246	1,404,247	73,502	11,960	43,912	289,734	.....	150
Livingston	126,836	20,120	2,116,311	270,784	68,560	662,715	614,470	200	52,697
Monroe	102,323	36,229	2,862,177	306,867	159,810	1,183,269	1,034,623	.....	498,979
Madison	55,316	13,144	2,188,197	156,591	16,426	313,311	779,437	.....	163,619
Montgomery	16,936	14,357	1,476,963	47,649	49,875	182,021	1,056,651	.....	.....
Niagara	79,731	21,957	1,818,502	133,862	69,428	731,907	625,535	.....	30,930
Onondaga	81,677	29,553	2,914,556	632,566	22,208	906,502	1,197,792	200	2,939,278
Oneida	33,016	22,030	3,258,968	93,906	45,308	630,328	1,089,272	.....	220,666
Ontario	129,141	26,180	2,410,328	490,257	73,894	863,267	761,150	.....	99,050

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Orleans	33,436	20,916	1,470,809	115,070	77,022	523,957	406,747	.....	42,665
Oswego	25,203	15,060	1,885,609	116,432	72,250	546,835	402,778	.....	36,830
Otsego	63,887	14,097	2,845,929	106,552	46,609	93,259	1,224,550	.....	6,015
Rensselaer	64,794	19,089	1,903,351	36,751	284,273	292,801	764,182	.....	2,000
Saratoga	49,495	15,193	1,799,822	34,855	158,490	400,314	811,963	.....	1,600
Steuben	135,308	21,243	2,600,414	430,158	88,063	208,802	1,294,812	75	171,657
Schenectady	8,795	7,538	692,213	16,186	57,687	120,168	410,623	.....	800
Schoharie	34,978	13,884	1,805,927	93,272	147,511	130,708	890,108	.....	2,280
Schuyler	46,492	9,101	1,076,662	169,988	43,350	212,934	494,545	.....	142,022
Seneca	33,279	11,625	1,152,936	368,296	21,300	630,892	672,142	.....	6,250
St. Lawrence	56,522	27,149	3,994,406	579,810	41,532	263,562	828,007	.....	25
Tioga	30,490	9,018	1,182,028	90,969	51,245	213,563	671,006	.....	17,305
Tompkins	49,043	12,602	1,526,031	194,057	61,171	349,472	865,781	230	131,405
Warren	17,379	3,826	590,791	23,668	21,800	82,894	126,489	.....	.....
Washington	113,604	20,352	2,238,701	30,701	136,566	473,522	788,575	.....	.....
Wayne	45,710	19,290	1,505,848	241,004	47,077	624,824	657,126	.....	58,280
Wyoming	82,359	9,396	1,730,096	193,761	19,615	185,225	416,968	.....	28
Yates	72,344	13,492	1,262,885	229,854	100,060	390,492	402,616	.....	45,295
Aggregate of Northern District of New York	2,379,280	715,033	$85,647,972	8,165,165	2,728,925	15,776,986	30,033,777	1,120	5,567,875
Recapitulation.									
Northern District	2,379,280	715,033	$85,647,972	8,165,165	2,728,925	15,776,986	30,033,777	1,120	5,567,875
Southern District	238,575	195,145	18,208,324	515,934	2,057,979	4,284,062	5,141,356	.....	196,707
	2,617,855	910,178	$103,856,296	8,681,099	4,786,904	20,061,048	35,175,133	1,120	5,764,582

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

NORTHERN DISTRICT—Continued.

COUNTY.	PRODUCE DURING THE YEAR ENDING JUNE 1, 1860.										
	Ginned cotton bs. 400 lbs. each.	Wool, pounds of.	Peas and beans, bush. of.	Irish potatoes, bushels of.	Sweet potatoes, bush. of.	Barley, bushels of.	Buckwheat, bushels of.	Value of orchard produce.	Wine, gallons of.	Value of produce of market gardens.	Butter, pounds of.
	20	21	22	23	24	25	26	27	28	29	30
Albany	.....	116,839	38,319	643,863	634	10,302	196,278	$86,359	2,919	$386,241	1,318,323
Allegany	16	283,595	39,584	548,085	80	38,474	149,555	1,263	103	3,799	1,665,621
Broome	.....	64,668	2,584	192,813	59	1,875	116,915	28,753	700	4,122	1,693,444
Cattaraugus	.....	132,784	19,607	469,379	4	9,593	62,843	10,376	55	15,325	2,324,507
Cayuga	.....	288,958	21,561	431,423	161	294,604	101,453	141,030	762	14,536	2,084,459
Chautauqua	.....	195,048	8,568	512,091	362	17,101	41,062	72,026	1,351	20,363	4,479,697
Chemung	.....	39,702	3,135	148,553	147	47,246	124,977	16,641	1,080	18,125	865,796
Chenango	.....	167,539	7,972	309,673	.....	6,114	85,423	46,222	278	983	5,046,772
Clinton	.....	97,849	28,538	670,276	.....	25,844	60,857	21,747	787	8,619	894,609
Cortland	.....	104,699	10,546	190,181	.....	11,488	37,216	29,496	243	8,347	3,375,372
Delaware	.....	127,128	3,632	429,331	17	3,800	222,368	27,812	114	360	4,966,118
Erie	.....	148,163	35,347	956,181	69	96,705	80,223	52,390	75	39,796	2,128,107
Essex	.....	162,596	14,442	411,777	300	3,792	22,977	26,953	195	6,092	634,289
Fulton	.....	40,169	13,413	176,660	.....	3,564	73,078	9,967	108	202	717,095
Franklin	.....	79,020	22,820	895,612	.....	14,265	27,960	7,554	50	654	1,497,162
Genesee	.....	351,249	59,333	457,141	30	168,284	57,676	114,994	866	3,395	959,465
Hamilton	.....	4,681	274	47,596	.....	82	6,766	542	.....	515	80,324
Herkimer	.....	86,550	24,917	869,511	.....	16,375	58,872	30,863	228	284	1,251,872
Jefferson	10	122,049	79,288	555,325	.....	375,464	7,711	45,860	1,399	8,034	4,890,980
Lewis	214	31,464	23,258	330,706	70	54,304	18,101	8,283	558	124	1,998,877
Livingston	20	464,518	38,158	371,739	.....	248,181	95,811	51,283	733	4,489	1,151,877
Monroe	.....	388,285	110,154	1,312,215	299	300,065	67,519	367,643	5,485	476,158	1,651,914
Madison	.....	205,309	45,216	357,389	43	39,224	41,573	44,277	1,687	3,986	2,135,617
Montgomery	.....	57,970	46,748	183,097	140	25,458	169,539	27,196	1,184	1,876	1,200,528
Niagara	.....	261,591	55,631	549,404	231	282,659	49,892	243,237	829	24,185	1,257,891
Onondaga	20	330,836	73,287	650,227	599	86,614	72,792	106,698	1,351	64,774	2,363,284

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Oneida	.....	117,435	36,736	958,147	65	26,364	81,985	100,016	1,425	29,530	4,140,442
Ontario	.....	505,546	49,148	504,970	2	330,123	72,992	204,373	3,090	38,915	1,188,103
Orleans	.....	276,881	121,570	298,535	160	139,011	32,658	227,896	457	2,932	854,054
Oswego	.....	85,707	22,803	648,903	103	14,581	69,784	106,992	1,133	23,768	2,171,838
Otsego	.....	244,118	40,224	562,372	.....	18,543	185,953	43,390	371	1,220	3,286,617
Rensselaer	.....	217,151	7,480	1,026,809	60	15,475	65,440	71,755	1,406	57,157	1,279,844
Saratoga	.....	157,793	8,447	931,577	.....	2,759	115,841	60,190	1,837	29,786	1,500,607
Steuben	.....	441,747	75,027	651,573	854	279,714	326,365	32,120	888	10,117	1,983,077
Schenectady	.....	33,613	13,629	196,099	.....	4,944	73,666	17,016	538	10,332	628,980
Schoharie	.....	114,991	50,028	350,479	.....	30,578	273,728	46,757	1,424	880	2,203,667
Schuyler	.....	165,800	5,288	166,971	50	152,480	146,555	37,569	511	5,879	705,094
Seneca	.....	114,916	2,183	197,952	41	171,693	58,641	96,071	1,545	3,222	663,107
St. Lawrence	.....	204,490	92,260	1,094,718	175	57,149	31,118	35,022	316	15,872	7,193,597
Tioga	.....	82,335	4,154	237,866	155	6,601	152,351	26,376	747	1,362	1,317,907
Tompkins	.....	444,770	7,114	266,347	.....	122,119	175,814	70,212	875	4,082	1,631,982
Warren	.....	56,775	3,124	240,092	.....	591	34,313	11,516	191	16,619	642,829
Washington	.....	405,597	11,030	1,148,430	.....	8,195	36,559	68,614	1,341	7,689	1,696,472
Wayne	.....	158,374	16,325	323,644	100	175,616	67,060	160,517	971	12,068	988,430
Wyoming	.....	329,079	45,686	396,072	3	117,572	62,789	62,252	356	6,288	1,500,824
Yates	.....	275,341	7,590	194,748	4	293,031	78,766	74,435	1,130	3,246	808,630
Aggregate of North. Dist. of N. York.	280	8,735,719	1,446,137	22,506,490	5,019	4,148,616	4,191,828	$3,172,555	43,695	$1,396,298	89,020,106
Recapitulation.											
Northern District	280	8,735,719	1,446,137	22,506,490	5,019	4,148,616	4,191,828	$3,172,555	43,695	$1,396,298	89,020.106
Southern District	.....	718,754	163,197	3,940,899	2,504	38,051	934,477	553,825	17,709	1,955,298	14,077,173
	280	9,454,473	1,609,334	26,447,389	7,523	4,186,667	5,126,305	$3,726,380	61,404	$3,381,596	103,097,279

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

Northern District—Continued.

COUNTY.	PRODUCE DURING THE YEAR ENDING JUNE 1, 1860.								
	Cheese, pounds of.	Hay, tons of.	Clover seed, bushels of.	Grass seed, bushels of.	Hops, pounds of.	HEMP.			Flax, pounds of.
						Dew rotted, tons of.	Water rotted, tons of.	Other prepared hemp.	
	31	32	33	34	35	36	37	38	39
Albany	72,005	72,621	11,656	1,064	37,946	.....	95	139	6,282
Allegany	939,115	41,767	68	876	49	.....	....	.....	2,207
Broome	53,719	58,072	87	586	7,645	.....	....	.....	1,858
Cattaraugus	1,857,349	33,401	21	385	47	.....	....	1	1,876
Cayuga	195,505	65,030	7,767	2,033	319	.....	....	.....	2,053
Chautauqua	1,153,257	84,914	28	582	489	1	....	.....	16,657
Chemung	11,090	25,890	504	563	93	.....	....	.....	785
Chenango	1,446,538	133,431	127	2,061	207,894	.....	....	.....	3,668
Clinton	87,780	35,929	16	552	166	.....	....	.....	440
Cortland	828,055	82,592	558	1,211	9,077	600	....	2,700	16,244
Delaware	44,777	125,820	427	1,220	166,568	.....	1	.....	2,286
Erie	2,278,276	46,460	232	603	8,874	.....	....	.....	1,119
Essex	106,119	36,825	38	768	1,973	.....	....	.....	77
Fulton	665,684	34,746	83	175	48,471	.....	....	.....	28,140
Franklin	138,776	49,258	7	2,494	149,675	6,000	....	.....	247
Genesee	119,502	23,778	1,056	404	5,056	.....	....	.....	843
Hamilton	7,170	5,256	1	15	453	.....	....	.....	.....
Herkimer	10,901,522	107,955	1,967	698	707,910	.....	....	.....	15,789
Jefferson	4,773,109	133,400	29	9,523	23,913	.....	....	1	72
Lewis	2,911,775	72,295	23	1,652	19,590	.....	....	.....	5,716
Livingston	235,195	37,353	3,299	1,032	6,521	.....	....	10	1,086
Monroe	171,960	51,019	4,326	627	32,916	.....	....	.....	84
Madison	2,589,992	88,136	1,012	1,075	1,520,657	.....	....	.....	282
Montgomery	2,611,448	57,719	5,491	3,005	515,584	.....	....	180	141,728

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Niagara	107,916	41,427	2,164	773	8,597	5	3	.....	107
Onondaga	1,127,283	77,634	8,289	1,370	41,208	.....	....	.....	9,224
Oneida	3,519,732	135,812	69	705	838,460	.....	....	.....	646
Ontario	217,934	45,359	5,231	1,247	108,264	.....	....	.....	346
Orleans	143,280	32,377	2,352	1,012	5	.....	....	.....	.....
Oswego	1,108,456	62,217	60	571	27,405	.....	....	.....	390
Otsego	2,161,929	124,369	3,381	3,396	3,506,269	800	....	.....	21,538
Rensselaer	626,683	73,413	.....	454	16,030	.....	....	.....	492,671
Saratoga	169,489	63,921	561	730	12,561	.....	....	.....	4,120
Steuben	231,233	71,102	2,552	1,823	38,547	.....	....	66	2,024
Schenectady	84,261	24,142	1,059	716	13,712	.....	....	.....	176,373
Schoharie	112,671	61,664	10,044	3,087	1,432,771	24,777	....	161	34,042
Schuyler	48,886	26,319	3,815	2,332	1,388	.....	....	.....	842
Seneca	15,284	27,850	9,199	6,437	14	.....	....	.....	3,823
St. Lawrence	2,353,887	165,633	25	4,432	99,833	.....	....	.....	809
Tioga	47,837	44,527	262	705	199	8	....	.....	791
Tompkins	55,452	48,858	3,027	1,587	1,095	.....	....	.....	65,236
Warren	87,673	24,258	4,167	65	267	.....	....	.....	165
Washington	768,320	88,519	11	1,932	4,427	.....	....	50	428,274
Wayne	144,640	30,119	2,457	579	4,575	.....	....	.....	7,770
Wyoming	981,946	40,472	655	500	7,411	.....	....	.....	6,784
Yates	77,496	23,978	5,062	1,226	49	.....	....	.....	130
Aggregate of Northern District of New York.	48,392,006	2,837,668	103,292	68,898	9,634,973	32,191	99	3,308	1,505,144
Recapitulation.									
Northern District	48,392,006	2,837,668	103,292	68,898	9,634,973	32,191	99	3,308	1,505,144
Southern District	156,282	727,118	3,640	12,724	20,569	.....	....	223	9,332
	48,548,288	3,564,786	106,932	81,622	9,665,542	32,191	99	3,531	1,514,476

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PRODUCTIONS OF AGRICULTURE—STATE OF NEW YORK.

Northern District—Continued.

COUNTY.	PRODUCE DURING THE YEAR ENDING JUNE 1, 1860.									
	Flaxseed, bushels of.	Silk cocoons, lbs. of.	Maple sugar, pounds.	44 Molasses, gallons of, and from what made.			Beeswax, pounds of.	Honey, pounds of.	Value of homemade manufactures.	Value of animals slaughtered.
				Cane.	Maple.	Sorghum				
	40	41	42				45	46	47	48
Albany	391	....	18,951	..	665	....	2,773	59,384	$9,182	$290,904
Allegany	277	....	616,966	..	4,693	....	2,309	60,532	14,816	231,777
Broome	57	....	104,840	..	1,457	....	1,804	34,263	8,964	167,898
Cattaraugus	191	....	691,632	..	5,112	....	3,320	38,463	19,547	235,954
Cayuga	242	18	114,183	..	2,984	....	4,123	87,656	11,438	441,263
Chautauqua	279	....	594,232	..	3,585	....	1,983	33,099	18,258	324,100
Chemung	25	....	27,514	..	1,479	....	1,527	38,991	3,719	118,278
Chenango	257	4	574,980	..	4,917	....	2,948	51,206	20,303	283,916
Clinton	23	....	207,965	..	967	....	2,331	36,057	10,222	165,932
Cortland	748	....	555,326	..	2,414	....	2,147	39,268	11,182	211,617
Delaware	228	....	591,535	..	11,157	....	3,383	65,807	22,803	276,277
Erie	85	....	245,870	..	1,861	....	2,091	43,278	23,627	315,661
Essex	2	....	121,936	..	1,079	....	2,164	31,231	21,832	152,465
Fulton	214	....	50,608	..	1,484	....	1,044	18,128	1,517	118,696
Franklin	65	....	385,698	..	2,577	....	1,527	22,906	23,007	151,688
Genesee	253	....	137,824	..	1,375	....	1,586	37,454	13,375	297,610
Hamilton	.....	....	30,494	..	656	....	295	4,847	1,638	15,589
Herkimer	952	....	218,167	..	6,129	....	1,876	47,936	19,630	226,282
Jefferson	73	....	857,790	..	4,136	....	1,416	22,933	34,072	398,299
Lewis	334	....	465,680	..	3,190	....	911	17,629	10,606	148,287
Livingston	1,076	20	24,767	..	818	....	2,400	44,241	23,345	325,332
Monroe	87	....	15,578	..	487	....	2,056	54,678	7,134	628,050
Madison	237	....	230,452	..	3,567	....	2,417	62,954	14,826	252,985

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Montgomery	2,107	....	38,461	..	2,958	....	3,512	53,678	4,616	145,417
Niagara	435	....	4,756	..	373	....	1,679	32,033	15,866	313,139
Onondaga	96	....	117,599	..	1,923	....	3,881	82,012	10,394	464,389
Oneida	54	....	204,898	..	5,818	....	2,946	57,837	18,159	563,222
Ontario	247	....	71,975	15	4,386	....	2,258	59,402	3,734	320,998
Orleans	.....	....	23,669	..	150	60	1,627	32,494	3,036	253,681
Oswego	5	....	189,407	..	4,247	....	2,568	36,594	40,309	385,642
Otsego	514	....	469,985	..	5,588	....	4,556	95,306	14,771	319,887
Rensselaer	17,537	....	39,211	..	1,140	....	2,573	28,311	3,962	327,595
Saratoga	45	....	26,310	..	128	....	2,099	43,683	5,453	331,093
Steuben	1,400	....	261,005	..	5,838	....	5,424	132,844	89,300	353,882
Schenectady	7,759	106	4,540	..	438	....	1,583	25,621	2,609	129,552
Schoharie	915	25	135,450	..	8,060	....	3,818	78,562	13,525	239,849
Schuyler	1,056	...,	27,599	..	1,020	....	2,034	45,534	17,944	128,182
Seneca	1,564	....	6,325	..	816	85	1,649	38,309	1,015	167,585
St. Lawrence	26	....	1,878,142	..	2,740	....	2,578	44,351	47,483	494,513
Tioga	140	....	67,320	..	1,331	....	1,777	47,674	7,892	161,543
Tompkins	1,450	....	82,146	..	1,665	43	2,576	54,102	4,724	202,112
Warren	1	....	74,026	..	2,555	....	1,636	19,946	8,943	96,677
Washington	13,311	75	49,033	..	1,942	....	3,604	46,693	4,873	469,263
Wayne	228	....	10,487	..	653	....	1,793	32,379	11,686	278,129
Wyoming	985	3	422,164	..	3,419	....	1,956	46,317	9,489	201,816
Yates	470	....	26,623	..	940	....	2,276	37,954	4,592	147,071
Aggregate of Northern District of N. York	56,447	251	10,614,139	15	124,919	188	108,938	2,124,577	$689,422	$12,272,449
Recapitulation.										
Northern District	56,447	251	10,614,139	15	124,919	188	108,938	2,124,577	$689,422	$12,272,449
Southern District	538	8	202,319	..	6,922	77	12,081	245,174	28,442	3,568,954
	56,985	259	10,816,458	15	131,841	265	121,019	2,369,751	$717,864	$15,841,403

Additional productions of Northern District New York:

Gallons of milk sold	53,400
Value of milk sold	$11,348
Broom corn, lbs.	3,139,852

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Agricultural productions of the State of New York, 1860, *compared with the productions as per United States Census* 1850 *and State Census*, 1855.

	1860.	1850.	1855—State Census.
2. Improved acres	14,376,396	12,408,968	13,657,490
3. Unimproved	6,616,552	6,710,121	13,100,692
4. Cash value farms	$803,343,593	$554,546,642	$799,357,367
5. Value farm implements and mach'y	$29,166,695	$22,084,926	$26,927,502
Live stock.			
6. Horses	503,735	447,014	579,715
7. Asses and mules	1,553	963	2,254
8. Milch cows	1,123,634	931,324	1,068,427
9. Working oxen	121,702	178,909	144,597
10. Other cattle	727,837	767,406	889,361
11. Sheep	2,617,855	3,453,241	3,217,024
12. Swine	910,178	1,018,252	1,069,792
13. Value live stock	$103,856,296	$73,570,499	----------
Produce.			
14. Wheat, bushels	8,861,099	13,121,498	9,092,402
15. Rye, do	4,786,904	4,148,182	3,039,438
16. Ind. corn, do	20,061,048	17,858,400	19,290,691
17. Oats, do	35,175,133	26,552,814	27,015,296
18. Rice, lbs.	1,120	----------	----------
19. Tobacco, lbs.	5,764,582	83,189	946,502
20. Cotton, lbs.	280	----------	----------
21. Wool, lbs.	9,454,473	10,071,301	9,231,959
22. Peas & beans, bush	1,609,334	741,636	950,046
23. Irish potatoes, do	26,447,389	15,398,362	15,191,852
24. Sweet do do	7,523	5,628	----------
25. Barley, do	4,186,667	3,585,059	3,563,540
26. Buckwheat, do	5,126,305	3,183,955	2,481,079
27. Orchard products	$3,726,380	$1,761,950	----------
28. Wine, gallons	61,404	9,172	18,181
29. Val. market gard.	$3,381,596	----------	$1,138,682
30. Butter, lbs.	103,097,279	79,766,094	90,293,073
31. Cheese, lbs.	48,548,288	49,741,413	38,944,249
32. Hay, tons	3,564,786	3,728,797	3,256,948
33. Clover seed, bush.	106,932	88,222	----------
34. Grass do	81,622	96,443	----------
35. Hops, lbs.	9,655,542	2,536,299	7,192,254
36. 37. 38. Hemp, tons	1¾	4	3⅝

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Agricultural productions—Continued.

	1860.	1850.	1855—State Census.
39. Flax, lbs.	1,514,476	940,577	4,907,556
40. Flax seed, bushels	56,985	57,963	87,093
41. Silk cocoons, lbs.	259	1,774	267
42. Maple sugar, lbs.	10,816,458	10,357,484	4,935,815
44. Molass., gls., maple	131,841	56,529	85,091
sorghum	265		
cane	15		
45. Beeswax, lbs.	121,019	1,756,190 wax & hon'y	138,033
46. Honey, lbs.	2,369,751		2,557,876
47. Value home-made manufactures	$717,865	$1,280,333	$928,675
48. Value of animals slaughtered	$15,841,418	$13,573,983	
Population	3,880,728	3,097,394	3,466,118

Increase of the following productions since 1850.

Improved acres of land	1,972,427
Cash value of farms	$248,796,951
Value of farm implements	$7,081,769
Horses	56,721
Asses and mules	590
Milch cows	192,310
Value of live stock	$30,285,797
Rye, bushels	638,702
Indian corn, bushels	2,202,648
Oats, bushels	8,622,319
Rice, lbs	1.120
Tobacco, lbs	5,681,393
Cotton, lbs	280
Peas and beans, bushels	867,698
Irish potatoes, bushels	11,049,027
Sweet potatoes, bushels	1,895
Barley, bushels	601,608
Buckwheat, bushels	1,942,350
Orchard products	$2,064,430
Wine, gallons	52,232
Market gardens, value	$3,381,596
Butter, lbs	23,331,185

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Clover seed, bushels	18,710
Hops, lbs	7,119,243
Hemp, tons	31,604
Flax, lbs	573,899
Maple sugar, lbs	458,974
Molasses, galls	55,312
Molasses sorghum, galls	265
Cane sugar, lbs	15
Beeswax and honey, lbs	734,240
Value of animals slaughtered	$2,267,438
Population increase	783,334

Decrease of the following productions since 1850.

Working oxen, number	97,807
Other cattle, do	39,569
Sheep, do	835,286
Swine, do	108,074
Wheat, bushels	4,440,399
Wool, lbs	616,828
Cheese, lbs	1,193,125
Hay, tons	164,011
Grass seeds, bushels	14,821
Flax seed, do	978
Silk, cocoons, lbs	1,515
Home-made manufactures	$562,486

From these tables will be seen the progress of our State for the ten past years, and the exhibit is one most creditable to the State. The increase in the cash value of farms, $248,796,951, is an answer to the occasional declarations we hear, that agriculture is on the decline. In the dairy department the increase of butter amounts to 23,331,185 lbs., and the diminution of cheese 1,193,125 lbs., showing that the cheese dairies have, doubtless, been transferred to the manufacture of butter.

Irish potatoes have increased 11,049,027 bushels, showing that the disease so fatal to this crop is passing away. In orchard products the increase of $2,064,430 is evidence of the attention which is being given to this important branch of domestic industry. The value of live stock increase amounts to $30,285,797.

Another striking feature is the increase of farm implements, amounting to $7,081,769, giving assurance that the inventions of

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our implement makers are supplying the waste of bone and muscle of the sturdy tillers of the soil, and enabling them to add largely to the profits of agriculture.

In the decrease of products, that of wheat still shows the devastating ravages of the destructive insects which have for a long period rendered our wheat lands far less productive than heretofore. It is hoped that the crops of the ensuing year will, in a measure, at least, show a return to the former productions of this staple article.

In wool the decrease is less than in 1855, and the attention which is now being given to the introduction of fine wool sheep, we trust will show a larger, in the next census, clip of wool than we have had for many years.

The importance of an annual collection of the statistics of our State is most apparent; its advantages will reach every branch of business in our State, and especially would prove of inestimable value to the agricultural and manufacturing interests. The Legislature having passed a law to collect the statistics of agriculture, we trust the law will be faithfully executed. It will prove the best argument that can be adduced of the value of this movement.

Although the statistics above given are in many respects defective, still, as showing the condition of agricultural productions from the census of the Government, they are valuable. The statistics from the State census of 1855 will show many of the defects of the census of the United States, and this is given.

B. P. J.

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REPORTS
OF COUNTY AGRICULTURAL SOCIETIES, 1861.

BROOME.

The prospects of the society are very encouraging, and there appears to be an increasing interest in our county in regard to agriculture.

Greater attention is paid to the raising of good stock. Our crops the past season, with the exception of grass, have been unusually good. Premiums were awarded at the annual meeting on field crops:

Wheat—Best acre, 35½ bushels; 2d best, 23 bushels.
Corn—Best acre, 85 bushels.
Oats—Best acre, 72 bushels.
Barley—Best acre, 25 bushels.
Potatoes—Best acre, 560 bushels.

The location of the fair grounds was changed from Lisle to Binghamton. The grounds comprise eighteen acres, enclosed with substantial fence eight feet high—a half-mile track, a commodious Floral Hall, Agricultural Hall, and other necessary buildings. The fair in September was a complete success, both in regard to the attendance and interest manifested, as well as the display of horses, cattle, sheep and swine—and mechanical and agricultural implements, &c.

CATTARAUGUS.

The twentieth annual fair of this society was held on the society's grounds, in Little Valley, on the 11th, 12th and 13th days of September last.

The display, in many of the departments, was unusually good, while in others it was deficient. The weather, the first and second days of the fair, was unusually stormy, and the attendance consequently small. The weather, the last day of the fair, was fine, and the ground well filled. The display in the various classes of cattle and sheep was nearly or quite equal to former

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exhibitions. The display of fruit was inferior in quality to former exhibitions, the crop having blasted in the spring, by the east winds.

The show in the ladies' department exceeded any of our former exhibitions, not in the number of articles, but in their superior excellence.

Among the chief attractions of the tent show, were specimens of practical and ornamental penmanship, by Prof. C. B. Knowlton, of this county, teacher of the Spencerian system, to whom was awarded the Diploma.

The receipts into the treasury, from all sources, during the year, was $1,529.80; expenditures, $1,451.75; leaving a balance in the treasury of $78.05.

The address was delivered at 2 o'clock P. M., of the third day, by Rev. Sylvester Cowles, of Olean—a capital, practical address, and was listened to with marked attention by our farmers present. Agricultural interest is increasing in this county at a rapid rate, and we confidently predict that before many years shall elapse, we shall be equal, in agricultural importance, to many of our sister counties of the east, of forty years our senior.

The annual meeting of the society was held at Little Valley in January last, and the following persons were, by ballot, elected officers of the society for 1862:

President, Samuel Wm. Johnson, Ellicottville; vice-president, Lorenzo Stratton, Little Valley; secretary, Horace S. Huntley, Little Valley; treasurer, George M. Fitch, Little Valley, and six directors.

HORACE S. HUNTLEY, *Secretary.*

CAYUGA.

The twenty-first annual fair of the Cayuga county agricultural and horticultural society was held on its grounds at Auburn, on the 1st, 2d and 3d days of October, 1861. Contrary to the usual experience of the society, it was vouchsafed three days of delightful weather, to which fact, we, in a measure, trace the almost complete success of the exhibition. Entries in all the departments were fully up to the average, while in some of the more important, there was a marked increase, both in excellence and numbers, over those of other years. Especially was this the case in the different classes of cattle and in the mechanical

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department. The display of agricultural and other labor-saving inventions largely exceeded that of any previous year of the society's history. The extensive Agricultural Works of Auburn, in which much of the capital of her citizens is invested, always render this department especially attractive to the farmer. The entries in vegetables, fruits and flowers were large in numbers and kind, and unusually excellent in quality. A renewed interest in the society's prosperity is being awakened in the minds of the farmers and mechanics of the county, which augurs favorably for future exhibitions.

JOHN G. HOSMER, *Secretary.*

CHAUTAUQUA.

The Chautauqua county agricultural society held its twenty-fifth annual cattle show and fair at the fair grounds in Jamestown, Tuesday, Wednesday and Thursday, Sept. 17, 18 and 19, 1861.

The first day was devoted to entries and transaction of the annual business of the society.

At one o'clock P. M. the society was called to order by the President; the treasurer's report for 1860 was read, and, on motion of Mr. Knapp, of Harmony, said report was accepted. The time for the location of fair and election of officers for 1862 having arrived, it was moved by L. B. Sessions that the said location and election of officers be postponed until Thursday, immediately after the address; said motion was unanimously carried.

On the morning of the second day, although the weather was extremely bad, there was probably the best exhibition of stock that ever occurred in the county, both in number and quality. At 11 o'clock, there was a trial of draft teams, which excited great interest. The plowing match took place at 3 o'clock in the afternoon, with nine entries, and the work very creditably done. The several committees made their examinations.

The trial of the speed of horses occurred at 9 o'clock A. M., on the third day; there was a fine display of horses, and witnessed by a large concourse of people. At 10½ A. M., the Hon. George W. Clinton, of Buffalo, delivered the annual address, which was listened to with great interest. Immediately after the address, the time arrived for locating the fair and the election of officers, at which time much excitement and feeling

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was manifest. On motion of M. P. Bemus, it was resolved that each member should designate his choice, as his name was called, and resulted as follows: Panama, 40; Westfield, 32; Mayville, 30; and on motion of Dr. Collins, of Ripley, it was unanimously resolved that the next annual fair, for 1862, should be held at Panama.

After the election of officers, the premiums were announced, and the closing exercises of the day were the procession of prize animals and the Indian foot-race.

The farmers and others of Chautauqua county manifested the same interest to sustain this annual fair, and although the weather was bad, the receipts were creditable.

JOHN T. WILSON, *Secretary.*

CHENANGO.

B. P. JOHNSON, Esq.:

DEAR SIR—Your letter, calling my attention to the report of our society, is received.

I was surprised to hear you had not received it, as it was sent more than a month ago.

The annual fair of the Chenango agricultural society was held at Norwich the 10th, 11th, 12th and 13th days of September, 1861.

We were encouraged to believe the last fair would prove the most successful of any fair ever held in the county. The first day the weather was propitious, and a larger number of entries were made than usual on the first day.

The second day it rained powerfully through the entire day, and there was a general foreboding that it would prove an entire failure. By extending it through another day, however, and the weather being fine, witnessed a large gathering from all the adjoining towns, which partially made up the deficit in our receipts, which we should otherwise have sustained.

It was the general opinion that the quality of the articles and stock on exhibition, though not as numerous as at some other fairs, was very much exceeded. The display of stock was very fine indeed, and shows the benefit which has been already received from these annual exhibitions.

The following are the officers for 1862: President, Leroy C.

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Sweet, Smyrna; secretary, John A. Randall, Norwich; treasurer, Dr. Blinn Harris, Norwich.

Enclosed is a statement of premium crops for 1861:

1. *Winter wheat.*—Ira S. Holcomb, 158 rods of land; amount harvested, 37½ bushels. Plowed the land the 25th of August, 1860, it being sward land, with a fair second growth of clover; sowed the 29th August two bushels wheat, soaked in vitriol water and rolled in slacked lime; cut the last of July, and threshed with machine.

2. *Winter wheat.*—Ira Crane, two acres and six rods of land; amount harvested, 60 bushels. Plowed and sowed the 10th of Sept., 1860, with two bushels Mediterranean wheat to the acre; covered with harrow, and rolled; put on about twenty-five loads of manure before winter set in; harvested in August and threshed with machine.

1. *Spring wheat.*—R. J. Converse, 33 bushels—1 acre 89 rods. The previous crop was corn, which was about one-fourth manured in the hill, the remainder was coarse manure plowed in—no manure the present year. The soil is loam, with clay hardpan subsoil; was plowed in the fall about ten inches deep, and cultivated both ways with a two-horse cultivator in the spring before sowing. April 12th, sowed three bushels China spring wheat, prepared by soaking in brine, then rolled in lime—sowed broadcast, and covered with harrow; harvested Aug. 16, and threshed with machine.

1. *Oats.*—R. J. Converse, 1 acre and 17 rods of land; harvested 85¼ bushels. The land and cultivation same as for wheat, but with less manure. Sowed four bushels Michigan oats, April 13; harvested the middle of August, part with cradle and the rest reaped; threshed the last of November by hand.

Expense of cultivation.

Plowing	$1 00
Sowing and harrowing	1 00
Harvesting	2 00
Seed, 4 bushels	1 50
Threshing	4 00
Interest on land	2 80
	$12 30

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	Cr.
By 85¼ bushels, at 3s.	$32 00
straw	3 00
	$35 00
Expenses	12 30
Profit	$22 70

1. *Barley.*—Smith A. Cleaveland, 178 rods; amount 56 bushels. Soil a gravelly loam; planted to corn in 1860, and manured with 25 or 30 loads to the acre of coarse manure. Sowed to barley the 1st of May, 1861, after once plowing, four bushels to the acre; variety, 2 rowed. Mowed and threshed with machine.

1. *Potatoes.*—Ira Crane, one-half acre; product 258 bushels; cultivated by putting on ten loads of horse manure; plowed ten inches deep; dragged down smooth, and marked with a corn-marker—rows three feet apart one way and two the other; hoed twice, and dug about the middle of October.

2. *Potatoes.*—R. J. Converse, 117 rods; product, 153 bushels. Land plowed in the fall about eight inches deep, it being previously a pasture; planted about the middle of May with the Door-yard potato, three feet each way; cultivated twice and hoed once.

3. *Potatoes.*—E. A. Bundy, one-half acre; product 83 bushels. The ground was a dry knoll, and the soil a gravelly loam; it received a moderate dressing of manure the year previous, and was planted with corn. The potatoes were planted about the middle of May, in rows three feet apart each way, on a smooth surface, the ground being marked with a corn-marker. They were cultivated twice each way with a cultivator, and hoed the last time, giving them as much hilling as the width of the rows would admit of. They were dug in October. Variety, Red or Hemlock potato.

Yours, truly,

ISAAC FOOTE.

COLUMBIA.

The annual fair and cattle show of the Columbia county agricultural society was held at Chatham Four Corners, on the fair grounds of the society, on the 18th, 19th and 20th days of Sept.

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The fair, as usual, was a success, and competition was entered into with a most lively spirit, as if to outdo any exhibition that had been previously held. The society had believed, from the show of stock of former years, and the flattering opinion expressed by visitors at our fair, that the cattle show could not be improved; but when viewing the display at the last show, such opinion vanished. In consequence of the dark shadow which rebellion against our Constitution and government had cast over the whole land, and the general embarrassment that seemed to pervade every branch of industry, many of the members of our society were about advising that the annual fair should be postponed for the year; but upon comparing opinions more fully, better counsels prevailed, and a premium list was made out, offering more premiums in the aggregate than had ever been offered before, and the result of the fair has proved its wisdom. The show of cattle was very large, and the animals much better than of any previous fair. Several pure-blood Durhams and Herefords were exhibited, and the crosses of those with our natives has proved of great value to the stock-growers of this vicinity. The show of horses was about the same as of previous years, fully meeting the expectations of the fanciers, in form and figure as well as in style and speed. The show of sheep was an improvement on that of former years, and a plain indication that our farmers are paying more attention to that important branch of farming—sheep raising. Among the numerous and fine animals shown, which elicited the approbation of good judges, the "grunter" also came in for its share, displaying its swinish proportions in a manner peculiar to itself.

In dairy products and household manufactures, the show was good, equalling that of any previous year.

The articles in the fancy department were very fine, though not so numerous as had been exhibited on previous years, which is attributable to the fact that none were by the society desired to be exhibited, only such as had been made during the year. The number of articles shown, with the skill manifested in the workmanship, is an evidence of the industry of the households of the farmers in this county.

NORTON S. COLLINS, *President.*

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DELAWARE.

The exhibition of the society was held at Hobart, September 18th, 19th and 20th, 1861. The weather was as favorable as could be desired; the entries were all made on the first day, and the two following days were devoted to the exhibition, which was unusually large; some three hundred head of stock was exhibited; some of it Durham and Devon, and most of it grade Durham and Devon, with some Ayrshire heifers, and native—much of it of a superior quality. There was an unusually large exhibition of horses, consisting of teams, single horses, brood mares and colts, and some very fine stallions. The exhibition of hogs was quite large, and some very fine Suffolks were exhibited. The show of sheep was not large; there were some fine specimens of fine Spanish Merinos shown, and ex-sheriff D. C. Thomas exhibited a lot of very large, fat Southdowns, which would make the mouth of an epicure water. The fruit and vegetable department was not fully represented; the cold, wet and backward spring caused the vegetables to be late, while the fair was held early, before the vegetables were matured. The fruit was a general failure in the county. The ladies' department was largely represented; a building 20x65 feet was so filled with their handiwork that it was with much difficulty the numerous articles could be examined and passed upon by the superintendents and committees, who struggled nobly, and well performed their duties.

The Delaware county fair has, unquestionably, been of great use and benefit to the farming interest of the county. Until 1855 the fair was held in Delhi, the county seat. That year it was offered to the town that would give the largest amount of money to the society, and furnish the ground with the fixtures for the society. Since 1855 the fair has been held in the towns of Walton, Franklin, Andes, the village of Bloomville, and the two last years in Hobart, traveling a distance of thirty-three miles; and the society has continued to increase in interest and usefulness until it has become necessary, the last fair, to hold it three days in place of two, as formerly.

The principal business and source of wealth is, and must be, in making butter and raising stock, as it is attended with the least expense in getting it to market, and is the business for which the soil is best adapted. The crop of hay was abundant the last season, and of excellent quality. Oats were an abundant crop, and of an excellent quality. Wheat was a general failure, owing

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to the prevalence of the midge, except some pieces on high and airy ground, which has generally escaped the ravages of the destroyer. Rye is raised to some extent in the county, and when harvested early, and cured in the stout or shook, of about eight or ten sheaves, with a cap, and then ground in a good mill, of which there are many in the county, makes a superior article of bread to much of the wheat flour brought from the west and marked with an X, and put up expressly for family use. Buckwheat was a good crop—more so than the common run of seasons; potatoes a middling crop; corn not quite as good as usual, in consequence of the wet, cold spring; still, there were some superior pieces, and most of the crop got ripe, the fall being warm and favorable for maturing the crop. There are many farmers who have learned the advantage and profit of raising a piece of corn sown broadcast or in drills, for the use of the dairy, in case of a drought in the fall. Corn stalks cut green, and well cured, it must be conceded make the sweetest and best butter if fed to cows in the fall, when the grass has been injured by frost. On the whole, the farmers of Delaware have cause of congratulation in regard to the prosperity of their agricultural society, and also much cause for gratitude to a beneficent and All-wise Providence in the abundant bestowment of the necessaries and luxuries of the past season.

CORNELIUS BECKER, *President.*

DUTCHESS.

The twenty-first annual exhibition of this society took place at Washington Hollow on the 10th, 11th, 12th and 13th days of September, and was in every respect highly successful. From the first organization of this society the farmers of the county have liberally contributed to its support. No sectional prejudices have been permitted to interfere with its progress; the produce of all parts of the county has been freely brought to the fairs; the people from all sections have attended in large numbers; from year to year the society has enlarged its premiums, improved its accommodations, and increased its attractions. Under such circumstances, and in a county with such resources, success must be almost certain. The exhibition of this year so nearly resembled that of other years as to hardly require a minute description. On the whole it was equal to any other year; in

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some respects it excelled; in others it fell short. There is evidently a growing interest in the horse department. The number on exhibition was greater than ever before, and as to the question of excellence, it will only be necessary to give the names of a few among the many on the ground. First was the famous trotter "Geo. M. Patchen," who gave some specimens of his speed, and convinced all that saw him, of his wondrous traveling capacity, as well as of his fine form, great strength and beautiful color; "Major Low," a colt of Patchen's, and likely some day to rival him in point of speed; "Jupiter," "Flying Cloud," with a half dozen of his colts, were among the horses in this class, and not belonging in the county. Horses in great numbers, of all classes, belonging in the county, were on exhibition, and making a show not often excelled. The show of cattle, sheep and swine was good, but not equal to some previous years. Poultry inferior; agricultural implements good; floral department good; fruit almost nothing; the hall was well filled with miscellaneous articles. A beautiful address, filled with noble thoughts, was delivered on the last day by ALLARD ANTHONY, Esq.

The society have made arrangements, and have already made some progress with the work, to enlarge their grounds to an area of twenty-one acres, and make thereon a horse track of one half mile. The funds are subscribed, and the work will undoubtedly be finished in another year.

The only field crop offered for premium was one acre of winter wheat; yield 30 bush., 43 lbs. Total receipts at the fair, $1,509.

Officers elected for the year 1862: Abram Staats, Red Hook, president; Wm. W. Haxtun, Beekman, treasurer; George Sweet, Washington, secretary; John U. Abel, Union Vale, assist. sec'y.

Respectfully submitted,

GEO. SWEET, *Secretary.*

December, 1861.

ESSEX.

A severe storm of rain materially affected the success, in every respect, of our last exhibition, and so far lessened the receipts arising from sale of tickets, as to make a payment of premiums, to the full amount, impossible.

The interest in our society is very well sustained, however, and I cannot doubt that it has had, and is having, a beneficial

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influence upon the agricultural interests of our county. Town societies have been organized in various parts of the county, and hold annual fairs; but these coöperate most harmoniously with, and, we think, increase the interest in, those held by the county organization.

Very respectfully,

R. L. HAND, *Secretary.*

Hon. B. P. JOHNSON,

Sec'y of N. Y. S. Agricultural Society.

FRANKLIN.

The annual fair was held September 11th, 12th and 13th; weather unfavorable; notwithstanding. the number of entries made were nearly eight hundred, and the exhibition in all the departments was very satisfactory, the exhibition of cattle, sheep and swine exceeding in number and quality that of any former year.

The annual address was delivered by LUTHER H. TUCKER, Esq., of the "Country Gentleman," of Albany, followed by a brief address of Hon. C. T. HURLBURD, of St. Lawrence county.

Receipts $1,159.32; disbursements $1,161.29.

Officers of the society for 1862: Alexander Lindsay, president; Smith T. Palmer, secretary; D. N. Huntington, treasurer.

GENESEE.

The annual exhibition was held September 18th and 19th on the society's grounds; the weather fine; number of entries not as large as 1860. We had no annual address; the attendance large, and our receipts as good as last year; show of horses large; cattle not as good as in 1860; sheep full as good; agricultural implements mere nothing. Seeds and vegetables: the show in this department small; what specimens were exhibited appeared fine. There was a fair variety of fruit; some very fine. As to the products of the county I am unable to procure any reliable information, as no farms were brought into competition at the fair.

Yours, respectfully,

H. M. WARREN, *Secretary.*

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HERKIMER.

The following statement shows the condition of the society at the date of this report:

	Dr.
The balance on hand after paying debts	$350 00
Receipts for the year 1861 for members and single admission tickets, and other sources	1,581 00
	$1,931 00

	Cr.
By amount of disbursements for expenses	$1,046 64
By amount of disbursements for premiums	509 00
By balance on hand	375 36
	$1,931 00

The last annual fair was held at the new location, between the villages of Mohawk and Herkimer, on the banks of the Mohawk river. The society has a lease of the grounds for five years; they contain about fifteen acres, and are fenced in on three sides with a board fence eight feet high. The other side is bounded on the Mohawk river, which protects it on that side. The building for the exhibition of in-door articles is a good frame building, 30x70. The society also has a large tent, used for speaking in, and other purposes; the society owns the fences, which cost about $325, and the buildings and other fixtures, and owes no debts, except a few premiums uncalled for.

The exhibition in many departments was highly creditable, and the competitors numerous, particularly in horses. In the ladies' department the attendance at the fair was very large, and the receipts larger than those before in a great many years. The society feels much encouraged, and is in hopes that the ample accommodations it has now will satisfy all, and that henceforth the society will continue to prosper, and be in reality a county fair, and of great benefit to the agricultural community of this county.

In the horse department about 148 animals were entered for premiums, and it was a display worthy of the county. The whole number of articles entered for premiums was 534; the whole amount of premiums offered was $770.25, and the amount of premiums awarded was $520. E. S. MARSH, *Secretary.*

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JEFFERSON.

The number of entries upon the secretary's books exceeded the expectation of the board of managers, who anticipated that the overshadowing exhibition of the State society, to follow, upon our grounds, the next week, would deter the farmers of our county from levying so great a tax upon their time and labor, by attending both exhibitions. All the classes of animals were well represented by choice and liberal selections. The dairy department was not found wanting in samples for examination, equal in number to that of previous exhibitions. Our mechanical department was less crowded by evidence of skill and workmanship than on some previous occasions, yet our manufacturers of carriages are entitled to particular notice for their efforts to increase the interest in our annual exhibitions by their liberal display of vehicles of the choicest qualities and latest styles, of every variety.

The several departments were represented as follows, to wit:

Thorough-bred cattle	38	
Oxen and steers	64	
Grades and natives	91	
	—	193
Stallions	16	
Brood mares, colts by sides (one entry,)	14	
Colts of various ages	47	
Pairs matched and farm geldings and mares	34	
Single geldings and mares	48	
	—	159
Sheep of different classes		153
Swine (sow and pigs one entry)		32
Coops of fowls		13
Total number of entries of animals		550
Domestic manufactures	141	
Fruits, flowers and vegetables	101	
Culinary department (bread, sauces, wines, etc.)	93	
Mechanics' products	93	
Products of the dairy in samples	50	
Fancy articles of various kinds	38	
Specimens of fine arts, pictures	35	
	—	551
Total number of entries		1,101

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Cash awards, $604.23; diplomas, 206; books, 109 vols.; agricultural papers, 27.

The weather on the first day was favorable, and the several towns in the county were well represented, not only by "animals and articles" for exhibition, but by the friends of "progress in agriculture, horticulture, the mechanic and household arts." The second day the weather was inauspicious, and the result gave evidence that many true friends of our organization require fair weather for fair exhibitions, a guarantee beyond the reach of their servants, the board of managers; yet the attendance was larger than anticipated in the morning, and after the exhibition of horses in harness, an exhibition which reflects credit upon the owners of the large number of fine animals in competition, the audience repaired to Agricultural Hall, and being called to order by superintendent Ely, the president introduced the speaker, Hon. William Dewey, of Lyme, who addressed the society in a manner peculiar to the orator, statesman and scholar. At the close of the address it was unanimously

Resolved, That the thanks of the society be tendered to the speaker for his able address, and that a copy be requested for publication.

Awards on Field Crops.

Peas—A. Tibbits, Rodman, 48 bushels per acre.
do H. Kimball, Brownville, 37½ bushels per acre.
Corn—Wm. Rouse, Clayton, 87¼ bushels per acre.
do James V. Warren, Brownville, 88 bushels per acre.
Beans—Edward Maynard, Brownville, 29 bushels per acre.
Carrots—Wm. Rouse, Clayton, 1,093⅓ bushels per acre.

ANNUAL ADDRESS TO THE SOCIETY, BY HON. WILLIAM DEWEY, OF ASHLAND FARM, LYME, SEPTEMBER 11, 1861.

Mr. President, Ladies and Gentlemen:

During the many years of the existence of this agricultural society, never before has its annual festival been held when the immediate future of our once happy country looked more gloomy than at present. *Here*, we are engaged in celebrating another year's triumphs of man in one of his most peaceful occupations. A few hundred miles from us, our own fellow citizens are contending in a deadly struggle, whose results will involve the very existence of our nation. Here abound specimens of inventions calculated to soften the labors of man in supporting existence—

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to add to the comforts of life, and to contribute to the happiness of our fellow beings. There, are concentrated all the enginery that ages of study and trial have proved best calculated to inflict injury, and to destroy life and property. They, who but a few weeks ago, were laboring to produce the grain and the implements, specimens of which are here collected, are now parts of that serried host called upon by our President to defend the Nation's Capitol and save the nation's life.

When, a few days since, your worthy presiding officer called at my home, and expressed a desire that I should address you on this occasion, I was so occupied in my farming pursuits, and felt so heavy at heart, in thinking of the unhappy condition of our beloved land, that my first impulse was to say that, while our Union, our Constitution, and all that from our infancy we have been taught to admire and revere, were imperilled, it was every man's duty to devote all his thoughts and acts, that could be spared from his pressing duties, to his country only; and that addresses to societies were but of little moment when our whole people needed a more thorough awakening to the mighty issue involved in the contest now raging. But the kind suggestions and persuasions of your President induced me to accept his call, and I trust that your indulgence will enable me to perform the task.

It is now forty-three years since the Jefferson county agricultural society held its first cattle show and fair. At that gathering, the Governor of our State, De Witt Clinton, and the President of the society, James Le Ray de Chaumont, made addresses.

In the course of his remarks, Governor Clinton said, in alluding to members of the society: "It is gratifying to perceive men, who have encircled themselves with high renown, and elevated the character of their country, planting the olive by the laurel, and cultivating the arts of peace with the same ability with which they directed the storm of war." And again, he said: "There was a period of danger, when the eyes of the people of this State were directed with peculiar anxiety to this region—when you passed with honor through the difficulties with which you were environed, and vindicated the character of America at the point of the sword."

Let us hope that some orator of your society, at no distant day, may be able to say equally complimentary words to the sons of Jefferson county, who shall win honors in the contest for the defence of the Union.

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Since the year of its formation, with but two or three exceptions, this society has held annual fairs. For more than forty years have the managers assembled the members to compare the products of their skill and toil; and it must be admitted that from such comparison have resulted better cultivated fields and gardens, a much superior grade of farm animals, and, consequently, homes more highly adorned and more comfortably enjoyed. Intelligent farmers cannot meet together and converse upon subjects connected with their pursuits, without giving or receiving information; they cannot see superior specimens of horses, cattle, or sheep, without having the standard of excellence made more exacting; they cannot witness the successful workings of agricultural machinery, and not seek to lighten their labors and add to their rewards by its use; in fact, no fair-minded man, or sensible woman, can attend these exhibitions, without returning home with a feeling that, however productive the farm, it still can be made to yield profitably, either more in quantity or better in quality; and however pleasant the enjoyments of home, yet that a slight outlay of time and means can add much to its charms and comforts.

The occupation of tilling the soil keeps man more isolated than any other of the leading avocations of labor that prevail in our community, and this very solitariness, because it hinders the constant intercourse of mind with mind, should be an argument for the cordial support of your society. Professional men daily meet in sympathy, or in collision—the trader is in frequent communication with his customers, and the mechanic works with his fellow in the shop, but most farmers spend their lives, seeing little, from day to day, but their own families, and their flocks and herds. Occasions like this are calculated to draw them away from their homes for awhile, and allow an inspection of articles here collected that would require days of time and many miles of travel otherwise to examine.

The stout father of the family, whose matched horses, whose well trained steers, whose cows and sheep, and pigs, have long filled his eye as paragons of beauty, speed, strength, prolific yield, or fine fattening qualities, looks with critical disposition upon animals from other sections, that challenge the admiration of impartial judges equally with his own. The frugal and industrious housewife carefully scans the cloth and flannels, the carpets and quilts, the mittens and blankets that equally industrious

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mothers have presented for competition. The blushing Miss examines the embroidered skirts and capes, and slippers and collars and undersleeves; while the rosy cheeked dairy-maid, whose skill contributes so much to the enjoyment of life, and to the prosperity of the farm, smacks her appreciating lips as she tastes of cheese as rich, and of butter as golden as her own.

Pride, self-conceit are wounded at these annual contests; but every true man studies carefully the spectacle, and carries to his fireside and fields ample material for earnest thought and action. If his calf or colt no longer seem so perfect, it is because his standard of excellence has been elevated; and his struggle hereafter will be for qualities in his domestic animals of a nobler character than he had before thought attainable.

Only a few years ago, how great the diversity in the quality of the butter and cheese, presented for competition at our county fairs; now, the color, the flavor, the grain, the neatness are all so uniform in different specimens, that the committees have great difficulty in deciding as to relative merits, where all are excellent. It is but a short time since that blooded stocks or grades were rarely to be found in our county; now, we have Durhams, Devons, Ayrshires, &c., among the cattle, and the most approved breeds of horses, sheep and swine.

It is unnecessary to further draw your attention to the fact, that the beneficial effects of our annual fairs are to be seen in all parts of our county; and to urge the consideration that what has already proved so advantageous, should be sedulously cultivated. Upon these subjects it would seem that you should be unanimous in your views.

But the meetings of societies is not the only remedy for the comparatively lonely life of the agriculturist. Although he cannot daily commune with his neighbors, about subjects that concern their interests materially, yet by means of periodicals, now so numerously published, and the many sterling works on various branches of farming, that have of late years issued from the press, the tiller of the soil has ample opportunities for pleasantly and profitably occupying his leisure hours. There he will find registered all kinds of experience, in all phases of farm life; the practical results of well and of ill directed experiments; the vagaries of science, as well as its wisely reduced principles. He will find how much chemistry has done for him, and how much its promises have surpassed its performances. He will read of the

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importance of soil analyses on one page, and on another of their uselessness. He will be told, by one, of the benefits of underdraining and subsoil plowing, and warned by another, that what may prove useful on one class of soils will be greatly injurious on others. He will hear of many machines to reap and to mow, to pump water and to saw wood, to thresh and to clean grain, to plow, to sow, to harrow and to cultivate. He will be told of wonderful straw cutters and churns; of wind-mills and steam-mills; of valuable varieties of corn, wheat, barley and vegetables; in short, although he will find much chaff, yet withal he will be able to screen out a considerable portion of sound grain. By the aid of his own judgment and experience, he will distinguish between the true and the false. The one he will reject, and the other cherish; and when time and opportunity offer, he will test by trial that which has struck him favorably.

No amount of reading alone can make a man a farmer. He must have long experience, accompanied by keen observation. But, on the other hand, no man can be thoroughly an intelligent farmer who depends solely upon his own practice, and neglects to avail himself of the knowledge of others, communicated orally or by the press. In all cases, in applying the experience of others, he must use his own judgment, modified by his acquaintance with his soil, the climate, and the character of the season. It frequently happens that failure in any new enterprise is to be traced to the following of a specified routine, without regard to the altered circumstances under which the trial is made. Bearing these considerations in mind, it is my belief that no farmer of observation and thought can read a good agricultural paper, regularly, without deriving from it more benefit than many times its cost; and wherever a family is growing up around him, it would be wisdom to subscribe for several. We have many papers of a high tone and pure morality, devoted to the interests of the tillers of the soil; and I would feel that I had done some good, not only to the fathers and mothers who hear me, but to the rising generation, could my words influence more numerous subscriptions to them.

The evidences of thrift, skill and intelligence displayed at this fair show that many of our farmers are not only well experienced, but well read; yet when it can be truly said that every occupant of tillable land in the county is a subscriber to some well edited agricultural paper, the results of labor and cultivated mind will

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be such as to enable this society greatly to surpass the best exhibition it has yet made.

The professional man is fully qualified for the discharge of his duties, not only by his own practice, but by becoming familiar with the theory and practice of others. The mechanic may make a good axe, the storekeeper may sell a hogshead of sugar at a profit, without being acquainted with the laws of trade in the one case, or the various properties of iron in the other; so may also the farmer raise a good crop of corn, while ignorant of the laws of nature; but true excellence in any trade, or art, or science, is to be reached by being satisfied only with all that is to be learned in the department to which a man may have devoted himself. Happy will be the day for our common country when it shall be deemed necessary that the youths whose lives are to be devoted to the production of the food and the material by which we are fed and clothed, shall be as well educated in the principles of their business as are those who are to execute our laws, to save our bodies from the ravages of disease, to minister to our soul's longings after immortality, or to discharge any of those offices that contribute to the wants, comforts or noble qualifications of a highly civilized community.

Our State Legislature has taken steps to establish a college, especially intended to advance agricultural science; and I trust Jefferson county will present for admission a goodly array of ambitious youths, prepared with willing minds to test its advantages. It has long been a favorite project with many patriotic citizens to have such an institution, and should but a small portion of the anticipated benefits be realized, we may confidently look forward to the day when the young men of New York, intended for the highly honorable occupation of farming, will be as thoroughly instructed in the principles of their business as are those designed for what are called the learned professions.

The application of the sciences to agriculture has of late years attracted much attention. Although it would appear that too great results were immediately anticipated, and hence has resulted disappointment, yet undoubtedly decided benefits will flow from the efforts of those who are thus endeavoring to elucidate the mysteries of soil production. The Agricultural College will add many to the numbers of those thus engaged. The students, after passing through the prescribed course, will become experimenters, observers and teachers. They will be scattered through-

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out our society. Their practice, where successful, will be imitated; and ten or twenty years hence, should the fruits of the college be that the annual value of the produce of each acre of improved land in the State will be increased only twenty-five cents, the aggregate will be immense, repaying many fold all the outlays that may be made to support the institution.

Let me say to you, fellow farmers, whose sons, as they grow up around you, become restless and anxious to leave the paternal roof, to seek under other skies for occupations more congenial to their tastes, if you wish to keep them around you, to cultivate the farm and to comfort your declining years, that you must make the field of their labor more attractive. You must have your boys educated in the principles of the business you wish them to follow. They must be taught to look upon the rocks that underlie the farm, and upon the stones on its surface, with eyes opened to the truths of geology and mineralogy; they must examine the soils in the various fields, and the fertilizers of the barn-yard and compost heaps, with an intelligence stimulated by a knowledge of chemistry. An acquaintance with botany will enable them to discover new beauties in the fields and woods. They should know something of the anatomy of the domestic animals; and a boundless field of inquiry will be opened by some information concerning the insect tribe, whose ravages this year have been so destructive to the farmers' hopes. The labors of the farm are sufficiently arduous to the young, when but mere unenlightened toil, and it is not surprising that they often become repulsive; but open to the ambitious, inquiring youth those portals of science that will reveal to him the wondrous mysteries of growth and decay, of barrenness and fertility; let mind, let thought, and instructed knowledge of cause and effect, control the management of the homestead, and an attraction will be thrown about its precincts that may lead the young to dread and postpone the day of departure from its fertile fields and pleasant groves.

It is no long period of arduous study, pursued at no great expense, that would be needed to acquire the foundation upon which, in subsequent years, a sensible lad could build a fair acquaintance with the laws of nature, so far as they influence the soil he cultivates, and the crops and animals he produces.

If the experiment of the State Agricultural College should prove successful, we may look forward to the time when schools

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for the instruction of those who propose to become cultivators of the soil, in the sciences more immediately applicable to their business, will be as common as good colleges are now. Indeed, when we shall have enough men, fitly educated for the purpose, there is no reason why a teacher or professor of agricultural science should not be as much a part of the faculty in our higher schools, as an instructor in mathematics, belles-lettres, or music.

Parents! how many of you have sons, bright, promising boys, who, before long, will grieve your hearts, by telling you that they do not wish to cultivate the broad acres to the clearing and subduing of which the energies of your life have been devoted? The boys dream of a happier and a more successful career in other avocations. They have labored all their short days, with but occasionally a few months' schooling, in aiding you on the farm. They look upon your toils as but a succession of ill requited drudgery. You, yourselves, have never fully appreciated the requirements of your high calling. How then could you impress its importance on your children! You passed your days in mighty struggles with the forest. Schools were few. Intelligence in the science of your calling was limited. From morning till night the woods resounded with the clang of your axe. Heavy logs were piled, great fires were made, and at night you returned home, begrimmed with charcoal and almost blinded by smoke and ashes.

When, after many weary years, the clearings were finished, there came an onslaught upon stumps and roots and stones—the old fields, so long used for pastures and meadows, were to feel for the first time the plowshare; new fences were to be made, and the old log house, that had sheltered you through these many years of labor, became too dilapidated for comfort, and too small for the increased family; and time and money were devoted to constructing a new dwelling.

There was an excitement, a species of romance about the clearing of your heavily timbered lands—the toil was severe—the privations were great; but it was a gratification to see the lofty trees that had withstood the storms, the fierce howlings of the mighty tempest for hundreds of years, bow before the arm of man. It was grand to see the heavy volumes of smoke roll up by day, and at night to watch the curling flames. It was exciting to start the leaches, to boil the salts, to melt the pots, and to roast the pearls. It was hard work, but healthy, amid the win-

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ter's snows to go into the silent woods to draw the beautiful logs to mill, and to get out rail cuts for the fences. It was pleasing, year by year, to see how steadily the field of vision around the log house was enlarged, and new prospects opened, until at length the eye could glance over miles of clearings; and withal, it was doubly gratifying to have the area of pasture and of meadow, of hoed crops and of small grains constantly increasing. To you, the men who cleared up the beautiful lands that surround us, and to you, the women who so patiently shared in the privations and alleviated the labors, there were elements of a pleasing nature in these occupations, that imparted to it an excitement, an interest, unknown in the dull routine of ordinary work on an improved farm. You look back upon those days of activity with but a faint recollection of their hardships, yet you cherish many a quiet thought of sweet enjoyment. Visions of deer hunts, of which the antlered trophies are yet preserved, of fishing in the brooks, rewarded by many a mess of speckled trout, of logging bees, where quick footed oxen and strong armed men worked on the jump, of house and barn raisings, of merry corn huskings and general trainings, of grand sleigh rides for many a mile through the snow-clad woods, with the girls snugly muffled in warm robes, and where the clear jingle of the bells, the happy laugh, the creaking of the snow, the cracking of the whips, and even the smacking of ruby lips, were all mingled in one harmonious chorus; all these, with recollections of the gay dance and of the wild frolic, come softly over your memory, like the low whisperings of the summer breeze, like the gentle murmuring of the rolling waters, as the long swells break upon Ontario's shore, like the far-off sound of church bells, mellowed by time, softened by distance, but also hallowed by many a pleasant thought and fond remembrance.

Parents! if you wish to retain your children around you, while their minds and hearts are being educated, you must have them taught to look upon the life of a farmer with higher views than a dull, unintelligent following out of its daily operations would lead them to entertain.

Let them learn the constituents of the air they breathe, and its effects upon vegetable and animal life; let them know how the soil they tread upon is formed, and what are its chemical qualities; make them familiar with the researches of science and the results of experience in the use of this air and this earth,

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and you will unfold to them new ideas of existence and enjoyment. They will behold beauty, order, system, design, where now they see nought but toil and hard work.

The sprouting grain, the tender grass, the swelling bud, will all be watched with a devout intelligence. They will become the possessors of a world of mental wealth that will give zeal and energy and pleasure to the operations of the farm. Their ideas of the dignity of an agricultural life will be elevated. They will understand that it offers a field for the highest attainments, is capable of gratifying the noblest aspirations, and that under a wise management, which shall be a judicious blending of the teachings of science with the observations of practical life, it can be made reasonably profitable.

I do trust that those who are so sure to take the places we now occupy, will be much better educated than we have been, in the true principles of land cultivation. We have subdued the wilderness, and prepared an arena for their efforts; and it rests with them to make Jefferson county a pride of the State.

We have here the soil, the climate, the position; we think ourselves too old to learn, but if those who are now at that age when the mind is most readily impressed, are properly educated, we will have in a few years a population of country gentlemen, who will cultivate their grounds with their own hands; and like the knights of old, who were heroes in the field and gentle and courteous in the castle, they will shine as intelligent men in any position, public or private, to which they may be called.

I have said thus much, fellow citizens, I am confident that many of you feel, as I do, in the cultivation of the soil, a want of greater information, and in the hope that it may stimulate some of you to thoughts that may lead to more wisdom on the part of our successors in managing the lands of our county.

There exists, to some extent, among our farmers a disposition to sell out their lands, and to remove to the west. This disposition, although less prevalent than a few years ago, is still more general than I think is justifiable. In a large proportion of the cases, when it has been yielded to, loss and disappointment have resulted. The years are so few since the settlements were made in this county, that much of the land is still occupied by those who, as men or boys, aided in its clearing. It will be well for those who feel an impulse to sell out, and to seek a new home in the distant west, to fully consider before they act. One of the

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elements in the character of a true patriot, is a love of home. In fact, a patriot is defined to be one who loves his country, and zealously supports and defends it and its interests; and to love one's country strongly, one should have a happy home there; and the pleasanter the home the greater will be his attachment to it, the livelier his passion to serve the country that embraces his home, to defend it from invasion, to protect its rights, and maintain its laws and institutions in vigor and purity. Patriotism is declared to be the noblest passion that animates a man in the character of a citizen. Our bleeding country now, more than ever, needs patriots; and parents, in making their homes permanent and pleasant, are doing much towards making their children patriotic.

It is, of course, the hope of bettering their condition, that causes the farm to be sold, by those who have passed through the labors and trials of rescuing it from the wilderness, who have pulled out its stumps, subdued its fields, and erected its comfortable buildings. If the land is worth the price to the buyer, it is to the seller, provided the seller is as good a farmer. Those who sell generally propose to pass through the operation of again making a new farm, at the time of life when they are no longer supported by the young blood that carried them so successfully through the first enterprise. If they buy improved farms, in good localities in the west, they will be obliged to pay sums that, added to the cost of removal and the attendant losses, and to the expense of getting comfortably established in their new homes, will often equal all they receive in the sale. In such a case they are no better off, unless they have obtained a superior quality of land, that, in productiveness, will counterbalance the increased distance from market.

As a general rule the markets of Liverpool and Havre control the prices of breadstuffs and provisions in the Atlantic ports; and the prices over our whole country are regulated by the cost of transportation to those ports. Every one hundred miles you go westerly, you materially diminish the value of your surplus productions, and, consequently, your land represents a diminished capital. Peculiar circumstances may, for a time, cause an inflation of the prices of some particular products in certain localities; but, in a course of years, it will appear that nearness to the great markets is what gives increased value to lands of similar fertility.

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My remarks are intended to apply to those comfortably situated on good farms, and who should not feel disposed to undergo all the labors and privations of making a new home out of the crude material that nature has provided.

It cannot safely be questioned, if a man is disposed to plunge into the wilderness, be it of dense forest or trackless prairie, to invest all the price received for his farm in government lands, at minimum rates; to throw up some logs for a rude shanty to stay in; to break up, or to clear a few acres, year by year; to court hard work, and to submit to privations and to solitude, but that, after long waiting, such as many of us have passed through in this county, population will gather around, railways will reach him, and his land will become valuable. But even in this case it might be shown that, had he kept the old farm, and devoted to its improvement the energy required to make a new one, by manuring, under-draining, deep plowing and adorning, the additional value thus imparted to it, and the higher prices obtained for its products, during a series of years, would make an aggregate that would show well when compared with the advance of his western lands. In this latter case he would not sacrifice any of those comforts that his youth and middle age had been occupied in accumulating. He would have remained in a highly civilized community, enjoying all the advantages of railroads, telegraphs, churches, schools for his children; and such exhibitions as the town, county, and State agricultural societies present to us this year.

In the one case he would leave more acres to his children; in the other he would educate them, and thus make them wiser and better citizens.

It is true that the hope of adding to the store of wealth, to be left to their boys and girls, induces many to thus tear themselves away from the scenes of their labors and triumphs, to face new dangers and to conquer new fields; but when parents, that contemplate taking their offspring to points where schools and academies are as few now as they were here in the early settlement of the county, I hope it will not be deemed out of place to remind them that, as wise a man as king Solomon has left on record his opinion that it is better to get wisdom than gold, and that to get understanding should be chosen before silver. Although three thousand years have passed since that inspired thought was

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recorded, yet how little is it regarded by fathers and mothers who pass a life of toil, accumulating gold and silver for their children, instead of wisely employing it to cultivate their minds and hearts.

No! farmers, no! Seek not for sunnier climes or for more prolific soils! The winds of old Jefferson are rude at times, and piercing; but no deadly malaria rolls over her hills, or poisons her plains. Her bosom will yield generously to your demand, bounteously repaying all judiciously expended labor. Her proud forests have bowed before your might. Your sons are panting for the wisdom that will show them how to cultivate intelligently the acres you have prepared. Let not their aspirations be in vain! Give them every facility for acquiring a knowledge of the principles of the noble occupation for which they are designed; and as they see the torch of science throwing its rays over the field of their labors, they will discover attractions in the many operations of the farm, to which they now are strangers. The dew, the rain, and the snow; the winds, and the clouds, and the clear sky; the floods and the drouths; the stones, the rocks and soils will be to them like volumes in a mighty library, each one of which has pages teeming with mysteries, but each one of which they are prepared to understandingly peruse.

Instead of leaving the home, to obtain which you have expended so many years of labor, and have suffered so much, under the hope that, in the distant west, some spot awaits you, where life's labors will be less and the returns increased, devote your thoughts to making your present farms more productive, by those arts of which your experience, or that of your neighbors, has already given you some knowledge. Manure the poorer portions of your acres; under-drain and plow deeper where needed; study a judicious rotation of crops; get the best breed of stock; make your dwellings more comfortable; set out fruit trees; cultivate choice gardens; lighten your work by using the most improved implements; become acquainted with the capacities and requirements of your soils; but, above all, thank Heaven that your lot is cast in one of the noblest counties of the Empire State; that you are the owners of so many fertile acres of this beautiful world; that you are peers with the highest in the land; that your home is where labor is honored; and always keep in mind that it is more honored the more it is enlightened; that no reluctant toil, urged by the overseer's lash, wins crops from your lands, but that free

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labor, clothed with the dignity of citizenship, sharing with you and defending with you the institutions of our country, is the only toil that you give to tempt our mother earth to yield up her abundance.

The commerce of our country, both domestic and foreign, with its railroads and canals, its ships and its steamers; the manufacturing and the mining of our country with the mills, and forges, and engines; the science of our country and its professions; its educational interests and the thousand occupations of our people, are all so continually drawing upon the ranks of our agriculturists, that, should the emigration from our county entirely cease, we may place in a distant future the day when, under an improved farming, and a use of its natural resources, our county will not support all the industrious population that may dwell within its borders. It has, therefore, appeared to me not inappropriate, on this occasion, to present a few thoughts for the consideration of this audience, that might have a tendency to make some farmers better satisfied with their condition here, and consequently less anxious to search in other lands for a more fertile soil, when, in reality, if they will but manure and dig, and plow, they will find it here beneath their feet.

I know too well the hardships, trials, and disappointments of a farmer's life to feel justified in trying to throw around it an attraction it does not possess; the floods at one time, and the fiery drouths at another; the intense cold, with the howling tempest, and the drifting snow; the late spring that retards the sowing and planting; and then the too dry spell that parches the tender plant; the rot that destroys the root crops; the rust that shrinks the barley and the wheat; the midge and the weevil, and the other many insects of the air and the soil; the late frosts that kill the fruit blossoms, and the early one that nips the corn; the fluctuating markets, and the thousand ills that frustrate the farmer's plans. These things I know well, and have suffered from them all; but, fellow-citizens, I also know that all pursuits have their drawbacks, and it is my opinion that the life of a farmer, especially of a thoughtful farmer, meets with an average of success and of happiness that surpasses that of most other callings; and as a part of that happiness, I class the noble consciousness of owning the soil you cultivate, and commanding from the primal source your immunity from want by your own free labor.

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LEWIS.

B. P. JOHNSON, *Secretary State Agricultural Society:*

Dear Sir: In accordance with the requirements of the State Agricultural Society I would respectfully submit the following report:

The County Fair. Notwithstanding the rain of the first day on which the fair was to commence, the people of the county turned out in large crowds to participate in the festivities and glories of our annual autumnal exhibition, on the 11th, 12th and 13th days of Sept., 1861, at Lowville.

The grounds presented a bright appearance, with the old "Star Spangled Banner" waving from the buildings in the centre, while surrounding it were numerous tents filled with "living collections," gay equipages, fast horses and vehicles, and thousands of militia on foot, all on the high road to enjoyment.

The attendance on the second day, and last days of the fair, was as large, if not larger, than ever before, and the receipts nearly as large as formerly, which was totally unexpected, considering the present state of the country, and the State fair so near by.

The exhibition of cattle, though not as large as usual, was very fine. The display of horses and the number of entries was up to any former occasion. Butter and cheese: the latter well represented, and very fine. The collections in the ladies' department were very beautiful, and display very good.

In the military line we witnessed an exhibition of Stevens' Zouaves, and the Academy Cadets; this was quite appropriate, and a new feature in the exhibition.

The address, by Hon. JAMES SHELDON, of Buffalo, was an eloquent and elaborate essay on the blessings of agriculture, and its connection with good government. His allusions to the state of the country were very felicitous, and drew forth the most rapturous applause.

The annual winter meeting was held at Houseville, January 14, and premiums awarded and officers elected for the coming year.

Treasurer's Report for 1861.

Cash on hand, 1860	$141 49
Receipts for 1861	641 25
State draft, Oct. 29, 1861	53 00
	$835 74

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Paid premiums and expenses	$653 24
Balance on hand January 14, 1862	$182.50

Report of Premiums on Crops.

Winter wheat—Calvin Wakefield, Lowville, one acre, 28$\frac{7}{10}$.
Corn, 1st prem.—A. N. Foster, Turin, 204 rods, 112$\frac{1}{2}$.
do 2d do —Norman Gowdy, Lowville, 4$\frac{1}{2}$ acres, 600 bush.
do 3d do —L. Maurice, Turin, 1 acre, 126 bush.
Peas—Norman Gowdy, Lowville, 1$\frac{71}{100}$ acres, 60 bush.
Carrots—Calvin Wakefield, Lowville, quarter acre, 204 bush.

F. B. MORSE, *Secretary.*

LIVINGSTON.

B. P. JOHNSON, Esq., *Secretary New York State Ag. Society:*

The president, secretary and treasurer of the Livingston county agricultural society for the year 1861 respectfully report: That at the commencement of this year the society was in debt nearly one thousand dollars, as will hereinafter more fully appear, which indebtedness accrued from building and improvements of the fair ground; that the officers entered upon their duties with the feeling that the financial success of county agricultural societies was still a problem to be solved; and it has been the aim of the officers to manage the society with the most rigid economy, and at the same time retain the general interest of the people in the society; and considering the pressure of the times, and the excitement caused by our national difficulties, the officers congratulate themselves upon the success attending their efforts.

On the 4th of July several gentlemen, members of the society, held a horse show on the society's grounds, and contributed from the net proceeds of the show $200 to the society.

Our annual cattle show and fair surpassed in every respect the expectations of all interested in the society. There was a large attendance of spectators, and, as far as we are able to judge, they were generally satisfied. The receipts of the society were not as large as last year; yet, in dispensing with the mowing and plowing matches, and having one instead of three days' fair, we have been able to reduce the indebtedness of the society materially, as will be seen by the report of our treasurer.

GEO. J. DAVIS, *Secretary.*

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MADISON.

Hon. BENJ. P. JOHNSON, *Secretary State Agricultural Society:*

Sir: The Madison county agricultural society held their semi-annual meeting January 3d, 1862, at which the following were elected officers for the coming year:

President—Charles C. Payne, of Hamilton.

Vice Presidents—Lewis W. Curtis, Madison; Gardner Morse, Eaton; Davis Norton, Nelson; O. B. Hinckley, Brookfield; V. W. Lillibridge, Lebanon; Benj. Fletcher, Georgetown; Stephen Hill, Fenner; A. C. Stone, Smithfield.

Directors—John S. Tillinghast, Eaton; Jerome M. Gray, Hamilton; V. H. Van Vleck, Hamilton, in place of C. C. Payne, resigned. The following directors hold over: Cyrus R. Ackley, Hamilton; Ralph H. Avery, Lenox; Wm. P. Wells, Cazenovia.

Treasurer—A. L. Brown, Eaton.

Secretary—J. Sterling Smith, Hamilton.

The meeting was numerously attended, and there seemed to be a determination to bring the society into a flourishing condition. It was resolved to hold the next annual fair at the village of Hamilton.

Premiums were awarded to H. H. Leach, of Eaton, for the best half acre of beans, peas and potatoes; and to A. K. Leach for spring wheat, and second best half acre of beans.

Our last fair was successful, although we were not fortunate as regards pleasant weather.

J. STERLING SMITH, *Secretary.*

MONTGOMERY.

Report of the Secretary.

Notwithstanding the unfavorable weather of Tuesday, and the consequent postponement of the fair, the attendance was large, and the number of entries of stock, etc., outnumbered that of previous years at least one-half. The society had been especially fortunate in the making of their programme, having secured the services of competent gentlemen for the annual address and the delivery of a poem—a new idea. Without detracting in the least from the efforts of gentlemen—always competent—who have delivered the previous addresses of the society, it is well enough to state the honest opinion of all who heard the address of Mr.

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Arkell, that, being terse, vigorous, adapted to the requirements of his listeners, and at the same time being an original vein of thought brilliantly given forth, it has hardly been excelled. Of the poem of Mr. Bowdish, the society, as well as he, have reason to be proud. It fully answered the expectations of all who have read his contributions to the press. Copies of the address and the poem have been requested from their authors; the public, therefore, will have an opportunity of judging of their merits after deliberate reading.

At a meeting of the directors, Oct. 10th, officers for 1862 were chosen, and the following resolution adopted as to fair grounds:

Whereas, the accommodations for holding the fair of this county are on too small a scale as to grounds and buildings, therefore,

Resolved, That the president and executive committee be requested to ascertain the terms for renting (or purchasing) twelve or fifteen acres of land for a term of years, and the cost of fitting up the same suitable for exhibitions, to be located somewhere along the Central railroad in this county, and that a special meeting of the board of managers be called by the Secretary for March next, for the purpose of considering the same.

A. H. BURTCH, *Secretary.*

October 10*th*, 1861.

NIAGARA.

My report this year will necessarily be limited, as I cannot speak very encouragingly of the exhibitions held during the year.

Much has depended upon the success of the society this year, to meet the large premiums offered, and the mortgage on the grounds, falling due January 1st, 1862, which has, as you will see, proved a failure.

The 4th day of May was fixed upon for a spring show, which was very meagerly attended.

The annual fair, appointed to be held September 25th, 26th and 27th, was broken in by the appointment of the 26th by the President of the United States, as a day of fasting and prayer.

The stock and cattle show was held on the 25th, and the exhibition of the 26th was adjourned until Friday, the 27th. The night previous it commenced raining, and continued incessantly the whole night and the following day, with high wind; notwithstanding, a large number of entries were made.

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The 28th, Saturday, was ushered in, which was clear, cold and windy; yet a large number were in attendance. The exhibition, on the whole, was creditable to all concerned. The stock and cattle show was as good as any previous year.

The premiums awarded were $375, and the receipts for that day were $244.73; thus it will be seen that the premiums awarded exceed the receipts about $130.27.

Thursday, fast day, intervening, and the inclement weather the following day, proved a failure to the well regulated efforts of the board.

Friday's receipts were $14.

Saturday's receipts were $158.82, and the premiums awarded for the last two days were $178—making in all awarded $553. The whole amount of receipts, therefore, are $415.55, to pay the expenses (which were larger than previous years) and premiums. This state of affairs somewhat embarrassed the board of managers.

It was suggested by several of the exhibitors to appropriate the amount above expenses toward the payment of the mortgage upon society grounds; but the board deemed it to be an act of justice to the exhibitors to pay them a percentage to help them in their expenses in attending the fair. Accordingly it was resolved to pay twenty-five cents on the dollar of the premiums awarded; except in classes thirty-three, thirty-five and thirty-seven, where the exhibitors were ladies, it was agreed to pay the full amount of their premiums. I take pleasure in saying that, with a very few exceptions, this met the approval of the exhibitors; it is, therefore, gratifying to the board to have it so generally approved of.

The society, therefore, may judge the position of the board, comparing this year with the year 1860, when our receipts were very large, so much so that the board paid $700 premiums, the expenses for the year, and $450 on the mortgage.

The mortgage on the society grounds falling due January 1st, 1862, together with interest, amounting to $856.94, the holders wanting the money, the amount was therefore borrowed, and the mortgage was discharged; and the president and secretary executed a mortgage to secure the parties that loaned the society. The society now have a mortgage on the grounds for $800, due January 1st, 1863.

I would suggest, in order to meet that mortgage, and make it easy for all concerned, that a subscription be circulated in every

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town in the county. Let it be a dollar subscription, and ask no more from any one. Such a course, I think, would meet the views of the members generally, and will enable us to pay the mortgage when due, or before, as the holders will discharge the same at any time the society request it.

It will be remembered that we have about twenty acres enclosed, and some temporary buildings upon it, which has cost the society something over $5,000, and worth to-day from $8,000 to $10,000. This alone should stimulate its real friends to meet and wipe out the debt now on it. Then rally, and place our grounds out of debt, and have the satisfaction to know that it is second to none in the Empire State.

Gentlemen, with this closes my services as secretary of the society for the past two years. If I have discharged the duties to your satisfaction, I shall retire with the satisfaction that my labors have not been in vain.

P. D. WALTER, *Secretary.*

January 7th, 1862.

Officers.—The officers for the ensuing year are J. D. Shuler, president; P. L. Ely, vice president; Henry Shaft, secretary, and P. D. Walter, treasurer.

Directors.—Alex. Campbell, Newfane; Robert Pierson, Royalton; H. Haywood, Lewiston; Elisha Moody, Lockport; Moses C. Crapsy, Lockport, and Thomas Scovell, Cambria.

ONEIDA.

Hon. B. P. JOHNSON:

The twenty-first annual fair of the Oneida county agricultural society was held at Rome, September 10, 11, 12 and 13. It was well attended, and the exhibition, though behind in some departments, was, in many respects, the equal of its predecessors. Horses, cattle, sheep and swine were well represented. The show of poultry was very good, though not large. The exhibition of plowing was better than usual. Fruit was quite inferior this year, as well as vegetables. The exhibition of horsemanship by ladies attracted a large crowd; the society also offered a premium for the fastest driving, which helped to increase the funds of the society.

The treasurer's report shows receipts as large as last year.

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Hon. J. F. Seymour delivered the address, which was well received, and which was requested for publication by an unanimous vote of the society.

Yours, respectfully,

R. MORRISON, *Secretary.*

ONTARIO.

B. P. JOHNSON, ESQ.:

Cor. Sec'y State Ag. Society:

DEAR SIR—It is with deep regret I have to forward to you the report of the proceedings of the Ontario county agricultural society for the year 1861, arising from the death of our much esteemed and valued recording secretary, John W. Holberton, Esq., who died the evening of the 13th of February, 1862, after a long and severe illness.

You can appreciate the loss he will be to our county society, for you know with what care and labor all his reports were drawn, and the interest he took in the society. I have never known any person with more executive ability, or who had all the details of his work, as recording secretary, so perfect or so well systematized. His place cannot be filled from among our members.

The annual fair of the county society was very successful this year, much more so than could have been hoped for, considering the troubled state of our country, by which the feelings and energies of the people were diverted from home matters to things of greater importance.

The exhibition was originally appointed for the 26th, 27th and 28th of September, which days were selected so the exhibition should not interfere with those of the neighboring societies. After all arrangements were made, the President appointed the "General Fast," upon the second of those days, compelling us to adjourn the exhibition of the society for two weeks, until after the State Fair. Adjournments of societies' exhibitions are always more or less injurious, but, in this instance, not as much so as we feared it would be. There was a large attendance for the first day, and the number of entries in the different classes as follows:

Cattle, 65; sheep, 284; swine, 92; coops of poultry and small animals, 41; horses, all classes, 190. The total number of en-

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tries, in all classes, during the fair, was 1,291. The receipts, from all sources, were over two thousand dollars. The receipts from annual, season and single tickets were, on the several days, as follows: First day, $144.29; second day, $831.62; third day, $281.24.

To all those persons who so strenuously urge a strictly agricultural exhibition, without anything to entertain the people, the meager receipts of the first day, which is the day for cattle, sheep and swine, of all agricultural societies, present a very searching question of this nature: Do the very farmers, who are so very eager for the strictly agricultural, really enjoy it themselves? If so, why are they not present, with their money, the first day? The receipts of other societies present the same great variation between the different days, and the premiums awarded upon the first day are never paid by the receipts of the day.

The annual winter meeting was very fully attended, showing the continued interest felt in the society. There were ten entries for premiums upon field crops, with statements, and fifty-five entries for seeds, the latter being a larger number than any previous year; though ten entries for field crops are a very small number for a county society, holding the position this does. The society offers high premiums upon these crops, and they are strictly agricultural, the premiums amounting to $115, but there are only nine persons who compete. The only reason I can give is, that the members are not willing to take the trouble to make out the statement.

The premiums upon field crops were awarded as follows:

Darius Newton, Bristol, 520 bushels beets from 69 rods of land.

H. M. Boardman, Gorham, 957 lbs. clover seed from $3\frac{7}{10}$ acres, being 4 bushels and $18\frac{14}{37}$ per acre.

John J. Bush, Hopewell, 2d premium; 54 bushels red clover seed from 14 acres.

Andrew Cone, East Bloomfield, 2d premium; 250 bushels beets from one-fourth acre.

H. M. Lincoln, Hopewell, $15\frac{1}{4}$ bushels timothy seed from 3 acres and $7\frac{1}{8}$ rods of land.

L. L. Howe, Phelps, 890 bushels shelled corn from $10\frac{1}{2}$ acres.

L. L. Howe, Phelps, 170 bushels oats from 2 acres and 6 rods.

Daniel Dryer, Victor, 198 bushels spring barley from 4 acres and 32 rods.

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The following statements, in reference to the premium crops, were handed in, though they are not as full as they should have been:

VICTOR, *September* 23, 1861.

I hereby certify that I have raised, the present season, 198 bushels of barley on 4 acres and 32 rods, which is 47 bush. and 8 lbs. to the acre. My farm lies about two miles due west of Victor depot, on what is commonly called "Oak openings;" the soil of said barley field is sandy loam, a portion of it strongly inclining to clay—the previous crop corn, on a tough June grass and white clover sod, without manure.

Mode of culture for the present crop.

1. Harrowed down the corn hills. 2. Hauled about 20 loads of rotted barn-yard manure on the clayeyest part of the field. 3. Plowed it about eight inches deep, with single team, using one of Lamport's two-horse Buck-eye plows. Sowed by hand the last week in April, ten bushels of 6-rowed (commonly called 4-rowed) barley; harrowed it both ways, then rolled. Before it was all up, sowed about 500 lbs. of plaster. Harvested between the 1st and 6th of August, using a cradle where it could be done to advantage, the remainder was cut with a scythe; raked into winrows with a common horse hay rake; cocked it up, stood two days; hauled from the cock to the barn; raked the second time with a wire tooth horse rake. Threshed with a machine Sept. 17th; delivered the crop to-day at the depot in this town for 50 cents per bushel. Value of crop..... $99 00

Cost of cultivation.

To 4 days with team, plowing, harrowing and rolling.....	$8 00	
To sowing barley and hauling and sowing plaster,	2 00	
harvesting and housing, 7½ days	10 50	
threshing, cleaning and marketing.....	11 50	
ten bushels of seed, at 50 cents per bush....	5 00	
		37 00
Profit		$62 00

DANIEL DRYER.

I certify that I raised a crop of beets the past season upon the land referred to in the certificate of Ira R. Peck, and that the quantity of beets raised thereon was 520 bushels, being at

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the rate of 1,209 bushels per acre. I also raised upon the same land 42 bushels of Swedish turnips, which, if included, make the rate 1,307 bushels per acre, all weighing 60 lbs. to the bushel.

DARIUS NEWTON.

BRISTOL, *January* 23, 1862.

CROP OF BEETS.—STATEMENT.

The land upon which this crop was raised has been used for the cultivation of beets and garden products for several years past, and has been highly manured. Twenty-five loads of stable manure were plowed under for this crop, and three several top-dressings of plaster and ashes were applied after the plants were up. Plowed full 12 inches deep, and sowed in drills two feet three inches apart (1½ lbs. seed of both French and English varieties) the last week in May, and harvested about the middle of November. The yield was 520 bushels on 69 rods of land. I also raised on the same land 42 bushels Swedish turnips from plants set in vacant places, in the month of July. The yield of beets was at the rate of 1,209 bushels per acre, and if the turnips are included the rate is 1,307 bushels per acre.

Value of crop, 564 bushels, at 20c	$112 80
Cost of cultivation	15 00

DARIUS NEWTON.

BRISTOL, *January* 23, 1862.

This is to certify that on the lot measured by Messrs. W. B. Witter, E. Archer and G. Turner, whose certificate of measurement is hereunto annexed, containing $3\frac{7}{10}$ acres, I have raised nine hundred and fifty-seven (957) pounds of clover seed, making four bushels and eighteen and twenty-four thirty-sevenths pounds ($4.18\frac{24}{37}$) per acre, in the past year of 1861.

The soil at the commencement of cultivation of crop in good condition. Previous crop wheat, after winter barley. No manure used for either of three previous crops. Seed, one peck per acre, of small variety; sowed about 1st of April, 1860, broadcast by hand. First crop cut June 27; second, for seed, Sept. 12 and 13, by hand. Cleaned in the usual manner.

Expense of cultivation, cutting and drawing	$4 00
Cleaning seed	7 00
	$11 00

H. M. BOARDMAN.

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HOPEWELL, *January* 29, 1861.

I hereby certify that I harvested and threshed from a field containing fourteen acres of ground, fifty-four bushels of red clover seed, measured and weighed by George Bush and William Dey. The land seeded after rye; no manure, but plastered in the spring. Mowed for hay about the 20th of June, and then saved for seed.

Market value, $3.50 per bushel		$189 00
The cost of cutting would be	$3 50	
For drawing	8 00	
For threshing and cleaning	28 00	
For help threshing	15 00	
For cleaning and weighing	2 00	
		56 50
		$132 50

JOHN J. BUSH.

I hereby certify that I raised from one-fourth of an acre of land, the past season, two hundred and fifty (250) bushels of beets. The soil a gravelly loam; the previous crop potatoes, which were thoroughly cultivated and hoed once, producing at the rate of about 200 bushels per acre. The land was manured with about 12 loads of stable manure, sheltered. One and one-fourth lbs. of seed was used, purporting to be Yellow Globe Mangel Wurtzel, but proved to be about one-fourth of the above variety; the remainder a mixture of all sorts. The seed was sown by hand, in drills 22 inches apart, the 27th day of May. The beets were well measured, some of them were weighed; averaging 62 lbs. per bushel. They were pulled and secured the last week in October.

Expense of cultivation and securing the crop.

Quarter of a day with team plowing and harrowing land,	$0 50
1¼ lbs. seed	80
Two days' work, planting	2 00
Five days' work, weeding and hoeing	5 00
Paid boys for pulling	52
Cleaning and cutting tops, 2½ days	2 50
Measuring and hauling	3 75
Amount	$15 07

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Value of 250 bushels beets, at 1s. per bushel	$31 25
At the above estimate, net profit	$16 18

ANDREW CONE.

EAST BLOOMFIELD, *January* 1, 1862.

I hereby certify that from a field containing three acres, seven and one-half rods, I raised the past season fifteen bushels and one peck of timothy seed. The soil, black loam. The previous crop was timothy, no dressing. It was cut the first of August with reaper, and left in bunches to dry; threshed with machine. I took one bushel, the same as the rest, which weighed forty-seven and one-half pounds. The straw is worth $24, for it was well secured and bright; harvesting, $5; threshing and cleaning, $4.

HENRY M. LINCOLN.

STATEMENT OF CORN CROP.

I raised, the past season, from 10⅛ acres of land 49,885 lbs., or 890 bushels of shelled corn, being an average of 84 bushels and 42 lbs. per acre.

When we commenced husking, I staked off what we thought to be something over two acres of the very best corn, and husked therefrom 362 baskets, yielding 12,361 lbs. of shelled corn—allowing 56 lbs. to the bushel, leaves 220 bushels from said piece. Have since measured said land, and found it to contain two acres and 22 rods, yielding an average of 103 bushels and 15 lbs. per acre. The soil is gravel and loam, and a large share of it very rich, as it lies near the barn. The field is underlaid with lime rock, and descending, somewhat, to the north. About two years since, one-third of the lot had been underdrained. About one-third of the lot was well manured from the barn-yard just before plowing. Plowed very deep, as early in the spring as possible. The lot had been pastured the two previous years. Dragged very thoroughly just before planting; marked both ways, three feet four inches apart, and planted with 8-rowed yellow corn at least two inches deep, with great care, the 19th of May. As soon as up, the entire field was plastered with about fifteen bushels of lime, ashes and plaster, of nearly equal quantities, and two bushels salt. There was no hand-hoeing done, but the cultivator was kept constantly moving among it, which caused the ground to be kept in a warm and lively state. At last, a

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horse hoe (or shovel plow with wings) was used both ways, very slowly and carefully, which caused the field to be admired by all who saw it. The corn was cut at the ground the middle of September; had a very large amount of choice fodder. Corn weighed the last of January, 1862.

The expense of cultivation.

For plowing 10½ acres	$21 00
dragging and marking	10 00
planting	7 00
cultivating, &c.	14 00
cutting up	10 50
husking	40 50
hauling and cribbing	9 00
	$112 00

I do hereby certify the foregoing to be a correct statement.

LUCIUS L. HOWE.

PHELPS, *January* 27, 1862.

STATEMENT OF OAT CROP.

I hereby certify that I raised, the past season, 178 bushels of oats from 326 rods of land, averaging 87 bushels and 11 lbs. per acre. Plowed in the spring, and sowed broadcast three bushels of what are called Black oats the first of May, on loam land, underlaid with lime rock. The lot was manured, and yielded corn the previous season. The above was the entire crop raised.

Expenses of cultivation.

Plowing	$3 00
Sowing and dragging	1 25
Cutting and binding	3 50
Hauling	1 50
Threshing	7 20
Seed used	2 00
	$18 45

LUCIUS L. HOWE.

PHELPS, *January* 27, 1862.

GIDEON GRANGER, *Cor. Sec'y.*

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OTSEGO.

Six years have now elapsed since the society renewed its youth and vigor under the favorable auspices of its new organization. During that period it has grown in favor and gathered strength with each returning season, until it has secured a permanence and stability which render it an honor to the county, and give promise of many succeeding years of usefulness.

The success which attended the fair of 1861 was more marked than on any previous occasion; not only were the number of entries and exhibitors greater than ever before, but the list of members showed a gratifying increase, and the financial receipts, that unfailing test of prosperity, were very satisfactory; while the throng of humanity was such as Cooperstown had never seen the like before.

Our gross receipts have increased from about $1,400, in 1856 and 1857, to over $2,100 in 1861; while the list of members, which numbered 239 in 1857, reached 445 for the past year. Substantial evidences of prosperity like these have seemed to warrant the directors in extending their boundaries, and they have therefore secured the use of the lot adjoining for a period of ten years. When this additional plot is enclosed, the area of the new grounds will be nearly double that of the present. This increase will enable the society to secure a full half mile track for the exhibition of horses, and tend so to distribute the crowds who frequent the fairs, as to avoid the appearance of contraction and want of space, which was observable at our last annual gathering. When we consider that all this has been done in troublous times, and in face of the gloomy forebodings of many who prophecied that the fair of 1861 would be a failure, we cannot but see that our county agricultural society has secured a firm hold in the affections of her sons, and that the days appropriated to our annual fairs are considered the great holidays of the year.

Facts so encouraging must stimulate the directors to renewed efforts to fulfil the "great expectations" of the members, and they pledge themselves to continue their exertions to that end, so long as they are favored with the confidence of the community.

They have an ambition, now in a fair way of fulfilment, to place Otsego county in the very front rank among the agricultural counties of the State. A few more years as successful as the

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past, will enable them to render the grounds complete in all their equipments; that accomplished, they will be able to offer premiums on such a liberal scale as will induce a more extended competition, and a more wide-spread representation.

A friendly feeling and cordial co-operation on the part of all, will soon secure this result, and if every subscriber of past years will become a member for the present, and induce a neighbor to do likewise, we shall at once reach a position which, as an agricultural county, we ought ever to maintain.

PRESIDENT'S REPORT.

Otsego county, lying rather in the eastern portion of the State, with its northern border some twelve miles south of the Mohawk valley, has a mean elevation of about thirteen hundred feet above tide water. Its entire length is about sixty miles, and its greatest breadth something more than half that distance. Nearly, if not quite all the waters of the county have a southern flow, and ultimately find their way into the Susquehanna river. What the precise fall of the river from its outlet at the foot of Otsego lake to where it leaves the southern bounds of the county, is, I have no means of ascertaining, but think it cannot be less than four or five hundred feet. The valley of the Susquehanna is the lowest depression of the county, and it forms the receptacle for all the streams flowing into it on either hand, both from the east and the west. The northern portion of our county, comprising nearly all of the towns of Cherry Valley, Springfield, Richfield and Plainfield, is underlaid with limestone rock, in many places coming to the surface, and at the same time adding much to the natural fertility and quality of the soil. The rock is of the same general character as that of the Onondaga limestone, though perhaps of not quite so hard and fine a texture. It is used for building purposes, is burnt into lime, and admits of quite a respectable polish. The highest point in the northern part of the county would, I have no doubt, on accurate measurement, be found at least two thousand feet above tide water; this, as it will be readily seen, affords sufficient reason why our winters are somewhat longer and colder than other parts of the State in the same latitude. The mean temperature for the year, at the village of Cooperstown, taking that spot as a fair test for the whole county, is, after some twelve years of careful observation, found to be at 2 o'clock P. M., about 51 degrees of Farenheit, and the quantity of rain that

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falls per annum, some 43 inches—Cooperstown being near or quite thirteen hundred feet above the level of the ocean. Otsego was taken from Montgomery and organized as a county in 1791; there was no complete census taken till 1800, when the population amounted to 21,636; in 1810, to 38,802; in 1820, to 44,856; in 1830, to 51,372; in 1840, to 49,628, with a total valuation of taxable property of $5,819,025; in 1850, to 48,638, with a total valuation of taxable property of $5,435,953; in 1860, to 50,166, with a total valuation of taxable property of $11,827,717.

From this statement it will appear that, though the population of our county is no greater than it was thirty years ago, still our taxable property has more than doubled in the last ten years. The area of our county embraces 608,491 acres, of which, according to the State census of 1855, 428,923 were improved, and 179,559 unimproved. The cash value of farms was put down at $18,318,997, of stock at $2,802,602, and of farm implements at $656,876, making a total of $21,778,475. The number of acres in meadow were 115,979, while the hay crop was only a trifle over one ton per acre, viz: 108,069 tons—this is disgraceful to the county. Of our cereals, taking the two heaviest, oats and corn, we had of the former 903,647 bushels from 49,016 acres, being a little over 18 bushels to the acre—a miserable return; of the latter, we find that 12,395 acres gave us 340,170 bushels, or about 27½ bushels to the acre—this is not much better than the oats. It is not worth while to continue an account so discreditable to us as farmers, as, were it in my power, I should much prefer, in making out this report, to be able to show that we are not at the very foot of the class in some of the products of the soil. In closing the list of cereals, I will only mention one more, viz: winter wheat; and here, worst of all, we find that 1,231 acres give us the miserable pittance of 5,678 bushels, about 4½ bushels to the acre, or a little more than twice the quantity of seed sown—although, be it here stated, that the premium crops of this and other grain, show that we *can* equal the most noted portions of the State. With this let us close the cereals, and turn to some of the other products of the county.

We find that 4,132 acres gave us 3,122,258 pounds of hops, being about 750 lbs. per acre; this strikes me as rather a small average for the banner county. Our product of butter, 3,075,206 lbs., and of cheese, 1,638,493 lbs., from 34,713 cows, seems to me a very handsome one. Of wool, we find 109,937 sheep give

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278,705 lbs.; this, considering the large proportion of coarse wool sheep we have, appears but a very light yield. Of artificial manure, I find that only about 2,000 tons of plaster, and 1,300 bushels of lime were returned for the whole county. Hops, butter and cheese constitute the largest and most important products of Otsego, and I should have been pleased to have compared the returns of the State census of 1855, with those of the United States of 1860, had the latter been published in time. It will be seen from the statement that the number of pounds of hops and butter are nearly the same. Now, taking the value of the hops at twenty, and the butter at fifteen, and the cheese at seven cents per lb., and we shall find the total about $1,200,000 from these three products alone.

The sixth annual fair, under the new organization of the society, was held on their grounds, in the village of Cooperstown, on Wednesday and Thursday, the 2d and 3d of October, 1861. The exhibition, taken as a whole, was allowed by competent judges to be the best we have ever had. The number and condition of the cattle, particularly the grade Short-Horns, were superior to those ever before shown on our grounds; and there was also a very large and gratifying increase in the number and appearance of the sheep. The improvement of our horses, which has been steadily going on for the last few years, is a matter of pride not only to those who raise them, but also to all who come to witness the exhibition. There was a slight falling off in the list of mechanical implements, though not sufficient to lessen the interest always taken by the public in this most useful branch of industry. It was also gratifying to see that the small premium for the best exhibition of flowers and plants, gave an additional source of pleasure to the frequenters of our fair. In looking back over the last six years, though so much still remains to be accomplished, we can all find some recompense for our care and trouble, in seeing the progress that has been made in both the quantity and quality of the products of our county.

The board of managers have taken, under a lease of ten years, and at an annual rent of $75, the adjoining lot belonging to George Clarke, which now increases the area of our grounds to about fifteen acres. This was thought expedient both from the increased interest which is taking place in our fairs, and also to give us more room for the erection of other buildings when necessary. We are in hopes, should the next fair prove a success, that

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the receipts will enable us to pay off nearly, if not quite all of the balance of the debt incurred in the purchase of the original lot.

In closing this report, I would say to all of us, who pride ourselves upon being farmers, that there is ample room for improvement, in the underdraining of the wet portions of our farms, in the more thorough working of the land, in the more cleanly and better preparation of the soil for the seed, and last, but not least, the more liberal application of both barn-yard and artificial manures.

ALFRED CLARKE.

TREASURER'S REPORT.

Jan. 1, 1862.	*Receipts.*	
Balance of cash in treasury		$2,782 47
Cash received from 445 members		445 00
do	at the ticket office	1,421 52
do	for rent of refreshment stand	40 00
do	for rent of grounds during fair	18 00
do	for rent of grounds since fair	19 02
do	for rent of main building	6 00
do	from the State	148 00
Interest account to date		37 97
Amount borrowed, and note given for same		1,500 00
Total		$6,417 98

Jan. 1, 1862.	*Expenditures.*	
Amount paid Wm. H. Averill, for fair grounds		$4,000 00
Interest to same, per contract		125 22
Paid Wm. H. Averill for rent of grounds		80 00
Premiums and expenses of 1860		50 76
Premiums of 1861, paid to this date		718 50
Premiums of winter meeting		90 00
E. P. Byram, for seal		12 50
Recording deed		1 00
Half a dozen chairs		2 25
Carpenters' bills and lumber		105 32
Music and expenses of fair		237 74
Repairs of track and fence		22 33
Printing, stationery and postage		107 26

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Water and repairs of water-works	$12 00
Diplomas and freight on do., and on books	11 25
S. Gregory's account	2 04
Sowing plaster	1 75
Interest and payment on note	781 98
Balance of cash in treasury	56 08
Total	$6,417 98

PUTNAM.

B. P. JOHNSON, ESQ.:

Secretary N. Y. State Ag. Society:

The annual fair of the Putnam county agricultural society was held at Carmel, on the 23d, 24th and 25th of September, 1861. The attendance was large, showing evidently the growing interest manifested in the society.

The exhibition of cattle far exceeded any former year. The entries of fat cattle were over sixty, among which were twenty bullocks from the farm of Daniel Drew, Esq., and twenty-three from the farm of John Harris, Esq., which attracted great attention. Visitors said they were the best they ever saw at a county fair, and would compare favorably with those exhibited at the State Fair. The show of working oxen and milch cows was large, and inferior to but few counties in the State.

The show of horses was good. Many of the farmers in Putnam county pride themselves on raising good horses. We had on the ground a *half mile track*, which was not only used for the display of horses on exhibition, but also by several ladies, who exhibited their skill in equestrianism in a manner which did themselves and the county much credit.

In apples, for which our county has been heretofore justly celebrated, owing to the general failure of the crop, the exhibition was not equal to some of our former ones. Of flowers and vegetables, however, the show was, as usual, highly respectable. The flowers from the gardens of Mrs. Livingston, Mrs. Belden, and the Misses Ludington, and the vegetables exhibited by Dr. Gregory, of Lake Mahopac, G. M. Belden, Esq., of Carmel, and Gov. Fish, of Garrisons, were worthy of special mention.

The cash premiums offered by the society the past year were

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$242, besides silver cups, knives, spoons, gold and silver thimbles, books, periodicals and fancy articles, amounting to one hundred and sixty-eight dollars.

The ladies, as usual, contributed generously, and manifested a deep interest in the fair. Their contributions to the several divisions, under the heads of Domestic Manufactures and the Floral Department, evinced much taste and industry.

The annual address, delivered by J. O. Dykeman, Esq., of Cold Spring, was well written and full of practical suggestions.

The annual meeting of the society was held at Lake Mahopac on the 18th day of December last, when the treasurer's report was read and adopted, as follows:

Balance in treasurer's hands, December, 1860		$444 84
298 members of the society		298 00
Gate, from sale of admission tickets		311 18
Rent on fair ground		40 00
Miscellaneous		3 25
		$1,097 22
Contra.		
Paid cash premiums	$132 33	
articles purchased for premiums	168 00	
printing	48 50	
expenses of fair	207 47	
		556 30
Balance in treasury		$540 92

QUEENS.

The twentieth annual exhibition of this society was held in the village of Flushing on Thursday, October 3d, 1861, having been postponed from the 26th of September, in consequence of the President of the United States having set apart that day for fasting and prayer. It was thought by many that the postponement, together with the engrossing subject of the war, the prostration of business, and the reduced incomes of many families, would operate against a successful exhibition. It was, however, the most triumphantly successful of any yet held by the society, and drew together a vast concourse for a rural district, forming a sort of congratulatory re-union of our Queens county farmers, with

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accessions from Kings, Suffolk, New York, and more distant places. The New York State Society was represented by B. P. Johnson, secretary, Luther H. Tucker, treasurer, and E. G. Faile. Numerous delegations were also present from other societies. It was estimated that more than twelve thousand persons were present. The receipts were over $2,000; and when it is considered that only *one day* is devoted to all the business, the result is eminently satisfactory.

Much credit is due the ladies of Flushing for their taste in decorating the mammoth tent. Over the entrance was inscribed, "*Queens County Agricultural Fair*," and on tablets suspended by festoons of flowers were the mottoes, "*Seed time and Harvest shall not Cease*," "*The Harvest, truly, is Plenteous.*" In front of the speaker's stand was written in flowers, in reference to our country, "*The Age that Gloried in thy Birth, shall it behold thee Overthrown?*" and suspended in front of the stand, appropriate to the oration, was a beautiful wreath, encircling the words, "*Speed the Plow.*"

The display of fruit, vegetables, flowers and agricultural implements was large; horses, cattle, swine and sheep, a very fair offering, but not so large as on former occasions; carriages, a very great display, while the ladies' handiwork, embracing a much larger number of articles than previously exhibited, was the chief attraction to many.

Seven hundred and ninety-eight entries were made in all the classes. The display of fruit and vegetables surpassed the State fair at Watertown.

The annual address of the society was delivered by Richard C. McCormick, Esq., on "*The Patriotism of the Plow.*" The address was well received, and a copy solicited for publication.

The display of grain, vegetables, fruit and flowers by the farmer's club of Glen Cove, attracted considerable attention. Among them was a cheese made by an old lady, who had made cheese fifty-three consecutive years, and a grain cradle which had been used by the owner fifty-one years successively.

At four o'clock the secretary announced the award of premiums, and by the setting sun nearly all the articles were removed.

THE WINTER MEETING

Was held at the Court House on Monday, November 25th, 1861. The attendance was much larger than at any previous meeting,

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nearly three hundred members being present. Sixty entries were made of grain, among them several samples weighing from sixty-one to sixty-three lbs. per bushel; thirty of butter, twenty-two of poultry, and a large number of vegetables, fruit, and discretionary articles. The butter was of a superior quality, and would compare favorably with some of the best butter districts in the State. The following were the successful competitors on

FIELD CROPS.

Statement of Peter Cock, Matinecock, of a crop of Asparagus raised on 7 acres and $7\frac{53}{100}$ rods, as per survey.

The ground was set out at different times, and has been cut on the average about seven years, with the exception of two acres, one of which has been cut two years, and not yet near up to a successful yield; the other but one year, and was cut only a few days. The soil is a light sandy loam, located near the salt water, the surface being nearly flat. The crop is manured with New York stable manure, seventy-five loads (fourteen bushels) to the acre, spread on the surface in the fall and worked up on the rows in the spring. The asparagus is set in rows four feet apart, sixteen inches apart in the rows, and five inches below the surface, with roots one year from the seed. The crop is cut and put up in bunches four and a half inches in diameter, and seven inches long, weighing three and a half lbs. to the bunch; the time of cutting is annexed. The crop was sold in New York for twenty cents per bunch.

1861, April 27	5	bunches.
29	27	do
30	35	do
May 1	52	do
*2	24	do
*6	40	do
*9	23	do
*10	16	do
11	130	do
13	326	do
14	345	do
15	337	do
16	420	do

* Heavy frost, by which about 1,000 bunches were lost.

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1861, May	17	436	bunches.
	18	495	do
	20	314	do
	21	253	do
	22	324	do
	23	395	do
	24	365	do
	25	371	do
	27	331	do
	28	433	do
	29	241	do
	30	183	do
	31	245	do
June	1	298	do
	3	308	do
	4	360	do
	5	331	do
	6	225	do
	7	150	do
	8	220	do
	10	246	do
	11	320	do
	12	278	do
	13	295	do
	14	258	do
	15	224	do
	17	205	do
	18	228	do
Total		10,112	bunches.

Receipts.—10,112 bunches sold at 20c. per bunch	$2,022 40
Expenses.—As per statement annexed	695 81
Balance in favor of crop	$1,326 59

Statement of Expenses of Crop of Asparagus.

525 loads of manure at 60c	$315 00
Unloading and carting, four teams and seven men two days	24 50
Plowing and harrowing, team and man eighteen days, at $2.50	45 00

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Harrowing, one horse and man four days, at $1.50	$6 00
Hoeing stubble, eight days, at 75c	6 00
Weeding, twelve days, at 75c	9 00
Carting to the boat	40 00
Wear and tear of boxes	10 00
Cutting and bunching, 253 days, at 75c	189 75
Freight, half cent per bunch	50 56
	$695 81

PETER COCK, *Matinecock.*

Crop of Asparagus raised by Daniel Smith, Matinecock, Oyster Bay, from $90\frac{66}{100}$ *rods.*

1858. Planted with roots one year from the seed, in early spring, on a fine sandy loam; manured with two hundred loads (fourteen bushels) New York stable manure; worked through the soil to thirteen inches deep; roots set in drills two feet apart—one foot eight inches in the drill and five inches below the surface; the plants covered at setting with about two and a half inches of dirt, the trenches afterwards filled in as the plants grew up, or as weeds required covering.

1859. Manured with one hundred loads of manure; forked over in the spring, and cut for about two weeks.

1860. Manured with seventy-five loads of manure, as above; forked in, and cut through the season.

1861. Manured with seventy-five loads, as above; forked over, and cut from April 30th to June 18th, as follows:

April	4	bunches.
May	598	do
June	410	do
Total	1,012	bunches,

seven and a quarter inches long, weighing three and a half lbs.

Sold to A. J. Sayres & Co., Fulton Market, New York, for 20c. per bunch $202 40

Expenses for 1861.

75 loads of manure at 65c	$48 75
Carting and spreading	4 00

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Forking, six men one day	$6 00	
$25\frac{3}{10}$ days cutting and bunching*	25 30	
		$84 05
Balance in favor of crop		$118 35

DANIEL SMITH.

Statement of Crop of Carrots raised by Thomas Youngs, Oyster Bay, on $39\frac{1}{10}$ rods of land.

The carrots were planted 25th of April, 1861, on a sandy loam, at Cove Neck, on high ground; twenty loads of New York stable manure spread on the ground and plowed in; one half pound of Orange Field carrot seed used, and drilled in thirteen inches apart between the rows; the crop was plowed out and cleaned on the ground; weight per bushel $49\frac{1}{4}$ lbs.

Value for home consumption, 206 bushels, at 25c		$41 50
Expenses.		
Twenty loads of manure at 60c	$12 00	
One day carting and plowing	2 50	
Half day planting	50	
Half lb. seed	50	
Six days hoeing	6 00	
Four men one and a half days harvesting	6 00	
		27 50
Balance in favor of crop		$14 00

THOMAS YOUNGS.

Premiums were also given for crops of rye, buckwheat, etc., to nearly the amount of $200.

THE ANNUAL MEETING

For the election of officers was called exactly at 2 o'clock in the afternoon of the winter meeting, the president, D. K. Youngs, in the chair. Ex-Governor John A. King being present, was invited to a seat at the side of the president.

The treasurer's report shows:

Cash on hand at date of last report	$803 30
Received from citizens of Flushing	291 00

* As the cutting and bunching occupied several hands a short time each day, no accurate account could be kept; but forty bunches are allowed for a day's work. Manure always carted on when the ground is frozen.

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Members' dues	$837 00
Sale of ten and fifteen cent tickets	910 89
State treasurer	91 00
	$2,933 19

Expenditures.

Premiums	$1,044 39
Fair expenses	618 06
Other expenses	365 33
Balance on hand	905 41
	$2,933 19

Receipts first ten years, $4,029.82; last ten years, $15,709.18.

The town of Hempstead offered fifty acres of common lands at a nominal rent, for a permanent location, but for want of unanimity in the acceptance the offer was laid on the table, and the next location left to the board of directors.

The National Course at Newtown was also gratuitously offered for the exhibition of 1862, and was likewise referred to the directors.

The thanks of the society were passed to all the officers for their efficient services during the past year.

JOHN HAROLD, *Secretary.*

HEMPSTEAD, *December*, 1861.

SKETCH OF THE AGRICULTURAL HISTORY OF QUEENS COUNTY, BY L. BRADFORD PRINCE, FLUSHING.

[Premium Essay.]

Since the first occupation of Long Island by the whites, Queens county has been decidedly—indeed, at times almost exclusively—an agricultural county.

Before that time, however, when the Indian was the undisturbed and undisputed lord of the soil, it could not boast of that distinction, as we find that the principal occupation of the original Long Islanders was literally "making money" in the shape of wampum. This, says Thompson, was manufactured most abundantly on Long Island, which abounded in shells, and was called for that reason *Sewanhacky*, or the "Island of Shells." We are told that some of the early French settlers undertook to compete with the natives in this branch of industry by manufacturing *earthen* wampum, but the deception was quickly discovered, and

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the earth thus misused was left to be employed for its better and more legitimate purpose.

It would appear, however, that many years and even centuries before the settlement of the country by the white man, Long Island had, when occupied by a race of greater intelligence and skill than the Indian, been made to reward the labors of the cultivator of the soil to as great an extent perhaps as at any period in her subsequent history. All the accounts which we have of the visits of the Northmen to this portion of America, as well as the suggestive name of *Vinland* or *Vineland*, which they bestowed upon the adjacent country from Cape Cod to the Chesapeake, prove this to be so; and the description given of the island which they visited just previous to entering a noble river "stored with salmon and other fish" (the Hudson,) shows that it was pre-eminently true of our island and county. Indeed, the fact most dwelt upon in these narratives and descriptions—on many points so vague and imperfect—is the fruitfulness of the soil and abundance of the crops. When it is recollected that the voyages of the Northmen, of which we have authentic accounts, extended from those of Biarne Heriulfson and Leif Ericson, about the ninth century, to a period considerably later than the visit of Bishop Eric, in 1121, and that during a large portion of this time they were permanently located on the continent, and even ruled a portion of it in the days of Biorne Astrandson, who for thirty years after his arrival in 999, reigned over the natives as a kind of chief—the importance of their testimony will be readily appreciated. But as the agricultural results of the partial civilization of that time long since passed away—although evidences of a former cultivation of the vine are mentioned by Verazzano, who visited the coast in 1524, and were still apparent even at the time of the first Dutch settlements, the island being found "full of many kinds of grapes," according to an old chronicler—the subject is of but small moment or interest at present, and I will therefore proceed at once to the more important period succeeding the final colonization of the country.

The peculiar adaptation of Long Island for agricultural purposes almost immediately attracted the attention of the European settlers, and we find as early as 1649, in the "Remonstrance of New Netherlands to the States General of the United Netherlands," dated July 28th, Long Island mentioned as "A crown of the province by reason of its convenient and fertile land;" and

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one town of our county (Flushing) is said in the same document even then to have been "tolerably stocked with cattle."

In 1653, in a remonstrance emanating from a meeting of delegates, in which Flushing, Newtown and Hempstead were represented, it is stated that they had "transformed a wilderness, with immense labor, into a few small villages and many cultivated farms," showing that at that time the chief object of the people was the cultivation of the soil, rather than trade or manufacture, which would have required *larger* villages, and lessened the "many" farms.

The price paid for the land to the natives of course varied in different localities and cases, but it is stated that in a portion of the country the rule was "one axe for fifty acres."

The following articles, which we find recorded as being the consideration in the purchase of a large tract at Oyster bay, in 1653, from Assiapum alias Moheness, the Matinecock Sachem, will give some idea of the class of goods most prized by the Indians, viz: "6 India coats, 6 kettles, 6 fathoms of wampum, 6 hoes, 6 hatchets, 3 pair of stockings, 30 awl blades or muxes, 20 knives, 3 shirts, and as much Peague as will amount to £4 sterling." And again, in the case of another tract in the same town, bought from Ratiocan, Sagamore of Cow Harbor, September 20th, 1654, where the equivalent was "3 coats, 3 shirts, 3 cuttoes, 3 hatchets, 3 hoes, 2 fathoms of wampum, 6 knives, 2 pair stockings and 2 pairs of shoes." The old story of the Indian who, after having designated the articles for which he was willing to resign his claim, among which was especially mentioned "*plenty* of rum," in despair at not being able to name a sufficient number of articles to compensate him, was forced to end his catalogue with "a pint more rum," might also be introduced in this connection, as it is located in Queens county, but is too familiar to require repetition.

Although in some localities land was thus purchased by individuals or associations direct from the Indians, in others it was bought in large tracts by the Dutch governors, and then granted by them for a consideration to such as might desire it. The grants were usually made to persons acting as representatives of their respective towns, and thus arose the system of "common" or "town" lands which prevailed to so great an extent in the county in times past, and which still exists in the case of the great Hempstead plains. In the subsequent division of the tracts

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thus granted by the governor, it was customary to distribute them in exact proportion to the amount of expense borne by each individual in making the original purchase. Thus we are told that in Hempstead "the portions allotted differed from 10 to 200 acres." On the northern side of the island a different system prevailed, and one which made labor and not money the basis. At that time the whole extent of country between Little Neck bay and Hempstead harbor was enclosed by a fence, which extended from near what is now Douglas Farms to Roslyn; and in the final division of the land the number of acres allotted to each individual was proportioned to the number of panels in this great fence made by him. This rule was first established in designating the number of cows which each inhabitant should be allowed to pasture within the enclosed space.

So entirely were the inhabitants of Queens county an agricultural people at this time, that we find the products of the field employed almost altogether in payments even of salaries and fees, in the place of regular money. Thus the tax annually exacted of Hempstead by the Dutch governor was to be "one-tenth of the revenue derived from the ground manured with the plow or hoe," which was finally fixed at "100 sheeples of wheat." The herdsman who attended to the cattle on the common land of the same town was paid 12s. sterling a week in "butter, corn and oats." The tax levied on the town of Flushing by the English governor in 1685 was "10 bushels of good marchantable winter wheate on every five and twentieth day of March." The town of Jamaica, January 29th, 1663, decided to pay 30s. per annum for beating the drum on Sundays and other public meeting days, "to be paid in *tobacco payment*, or in wheate at 6s. 8d. or Indian corn at 4s. a bushel." In Newtown, we find it voted, December 13th, 1670, at a town meeting, "that if Mr. Leverich shall continue in this town to preach the word of God, a rate of £40 shall be made for the building of a meeting-house, half to be paid in corn and the other half in cattle." The following documents which I introduce in the same connection, also go to show the plain and primitive habits of the people, the same John Bowne who was in the one case the hirer being in the other the person hired:

"It is contracted between John Bowne inhabitant in Flushing, in ye province of New Netherlands, in America, on ye one part, and James Clement of ye Buthrop-Bridge of Durham, in ye Kingdom of England, on ye other part. That is to say that ye said

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James Clement do hereby bind and obligate myself to the most of my power truly and faithfully to serve ye sayd John Bowne, his heirs and assigns, ye full term of 6 years after my arrival at ye habitation of ye sayd John Bowne, and to pay one-half of my freight or passage from ye place of embarkation to ye place of ye aforesaid mansion. In performance of ye promise by ye sayd James Clement ye aforesaid John Bowne do hereby bind and obligate myself, heirs and assigns to pay or cause to be paid to ye sayd James Clement ye full quantity of 240 pound weight of Tobacco, and sufficient to clothe him with two suits of Apparell, one fit to Labor, ye other fit to use on other occasions.

JOHN BOWNE.
JAMES CLEMENT.

JOHN LODGE, *Witness.*
SYLVANUS HALFORD, *Witness.*

Amsterdam, in Holland, the 30th of the 5th month, 1663, new style."

The second document is this memorandum, entered in his journal by Mr. Bowne:

"Monday, Jan'y 7th, 1649, I entered into Mr. Phillips' service, for which service I am to have five shillings every week, one-half in money, and one-half in wine, to myself or whom I shall assign, and also my diet and lodging and washing, for so long as I shall please to stay with him, I being free at every week's end if I will.

JOHN BOWNE."

In those days, says the author from whose little volume I have extracted these documents, "they were not afraid or ashamed to work with their own hands. Labor was not considered a disgrace. The plebeian touch of a poor man was not a contamination. To work, even in the service of another, was not a sign of inferiority, intellectually or socially."

The prevalence of the system of barter or payment in fruit and grain may be judged from the fact that an English shilling having been found on the road from Flushing to Manhasset, great excitement was caused and much enquiry made as to the owner of the rare commodity, when at length it was discovered to have been dropped by a foreign pedlar who had recently passed through the county.

The arrangements made in the several towns for mutual protection and advantage, display a greater amount of public spirit

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and sagacity than we should expect to find in such a newly settled district. The system of common or town lands, for example, was a most excellent one for persons in their condition, and the same spirit is evinced by the following extracts, which are from the records of one town alone: The people of Jamaica, April 30th, 1661, voted "to hire a cow-keeper to keep all the town's cows and calves for the year." February 6th, 1663, "Town agreed that whoever shall kill any wolf shall have 7 bushels of Indian corn," and even before that, January 15th, 1661, it was "Ordered that a tax be laid to pay for a wolf of Abraham's killing and one that John Townsend's pit catched." As early as February 18th, 1660, we find a rate recorded "for paying for the bull's hire the last year by the town." In April, 1661, "the town being informed of one that milked other folks' cows and having been catched in the act, it was ordered that Wm. Foster should prosecute the offender to the uttermost either here or at Manhattoes."

The same is seen from the manner in which the mowing of the town meadow was arranged. "March 29th, 1659, it was voted that the people mow by squadrons, to wit: John Townsend and his squadron at the East Neck, Robert Coe and his squadron, at the Long Neck, &c."

That salt hay was appreciated at its full value, and its possession regarded as of sufficient importance to be a ground of dispute, may be seen from the following singular and exceedingly affectionate document, dated July 5th, 1669:

"Friends and neighbors of the town of Huntington. We once more desire you in a *loving* friendly way, to forbear mowing our neck of meadow, which you have presumptuously mowed these several years; and if after so many *friendly warnings*, you will not forbear, you will force us, *friends and neighbors*, to seek our remedy in law, not else; but resting your *friends and neighbors*. By me, in behalf of the Town of Oyster Bay.

MATTHIAS HARVEY, *Town Clerk*."

It may not be out of place to mention here, although strictly pertaining more to horticulture than agriculture, that the Huguenots who fled from France on the revocation of the Edict of Nantes, and settled in Flushing, brought with them a number of varieties of very superior fruit trees, since which time that town, and indeed the entire county, has been famous for the excellence

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of its fruit, and has through its celebrated nurseries, served as a kind of depot from which almost every section of our country has obtained its original supply. And while trespassing on the bounds of horticulture, I will also add, as proving the pre-eminence of our citizens in this respect nearly a century ago, that in 1767, a society which had been formed about three years before in the city of New York, "to advance husbandry, promote manufactures, and suppress luxury," awarded a premium of £10 to Thomas Young, of Oyster Bay, "for having raised the year before 27,133 young apple trees;" which also proves that apple eating and cider drinking were not included among the "luxuries" which at that time it was considered necessary to "suppress."

In 1775, during the French and Indian war, our county displayed at once her patriotism and the success of her agriculture, by the act which is immortalized in the following letter from the commanding General:

"To the Representatives of Queens county, Oct. 10, 1755:

Gentlemen—A few days ago I received a letter from Messrs. Schuyler & Depeister, of Albany, acquainting me that you had sent to them 69 cheeses and 200 sheep, being part of 1,000 raised in Queens county, as a present to this army, and which they had forwarded to me. * * * * * * * *

The most equitable and useful division hath been made of this generous and public spirited present, which we could follow.

The cattle and a few sheep had been sent by some of the Provinces to their troops, yet your sheep were very seasonable, and highly beneficial to the army in general. Your cheeses were highly acceptable and reviving; for unless amongst some of the officers, it was food scarcely known among us.

This generous humanity of Queen's county, is unanimously and gratefully applauded by all here; we pray that your benevolence may be returned to you by the Great Shepherd of human Kind, a hundred fold; and may those Amiable housewifes, to whose skill we owe the refreshing cheeses, long continue to shine (!) in their useful and endearing stations.

I beg, gentlemen, that you in particular will accept of, and convey to your generous county, my grateful and respectful salutations for their seasonable beneficence to the army under my command. I am, Gentlemen,

Your most obed't and obliged servant,

W. JOHNSTON."

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It is to be feared that the same loyalty and patriotism which then displayed itself in behalf of England's government, has never been transferred in its full extent to our own, judging from the 820 men raised "in one day," Dec. 10th, 1776, in Queens county, for the royal (tory) service, and the very small success which recently characterized the attempt to fill up and send to the war our 15th regiment.

I have dwelt thus long on the earlier agricultural history of our county, because I conceived that the object of the society in desiring essays on this subject, was more to collect and preserve the facts connected with the earlier and less familiar stage of our agricultural progress, than to possess a compilation of facts and narrative of events in its more recent history, with which the members of the Society are generally acquainted from their personal observation and knowledge, or from the reports of this and other Agricultural Societies.

With the addition, then, of some general remarks on the structure and climate of the county, and a brief account of her agricultural society, with whose progress her agricultural history has now for many years been almost identified, I will close this hasty and imperfect sketch.

To enter into any long dissertation on the geology and climatology of Long Island, at this time, would be as unnecessary as it would be out of place. So much has already been written upon these subjects, and by such able hands, that they may be said to be exhausted, and whatever is now said, to be truthful cannot be original, but must necessarily be more a compilation of facts and ideas already well known, rather than a statement of new facts and original theories and opinions.

The first great peculiarity in the physical structure of the county which claims the attention of the observer, is the striking dissimilarity existing between its northern and southern sides, a peculiarity which exists throughout the entire Island. On the one side of the range of hills which extends from Brooklyn to Montauk, almost literally forming the "back bone" of the Island, the land hilly and broken; on the other, an almost perfectly level plain; on the one side, the streams rising at the very foot of the hills and flowing toward the sound; on the other, rising at considerable distances from the range of hills, and appearing more like inlets from the ocean or the great salt water bays which bound the Island on the south, than like streams whose waters

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flow regularly from a given source to a given destination; on the one side a soil, which for its richness and adaptation to the purposes of agriculture, has no superior; on the other a soil comparatively sandy, and much of which was popularly reputed in times past to be unsuitable for agricultural purposes, until experience and scientific investigation demonstrated the entire fallacy of the opinion.

The cause of this great dissimilarity I will not pretend to discuss in a paper of this kind, but refer any, wishing information as to the various theories advanced and the arguments by which these theories are sustained, to the remarks of the celebrated Dr. Samuel L. Mitchill on this subject, to the opening chapter of Thompson's History of Long Island, and to the preliminary remarks of Mr. Watson in his admirable paper on the "Plains of Long Island" published in the proceedings of the New York State Agricultural Society for 1859. All authorities seem to agree, however, that the portion of Long Island south of the Green Hills has been gradually formed from the action of the ocean, and that its slow but certain increase from the same natural causes which have so far produced it, will probably continue for ages to come.

Queens county, which extends twenty-six miles from east to west, and has an average breadth of about sixteen miles, contains nearly 396 square miles of land, or 250,000 acres. Of this, about 25,000 acres are included in the salt meadows, and another 25,000 in the plain lands; leaving in round numbers 200,000 acres of ordinary arable land. Of this, between two-thirds and three-quarters is "improved," according to the census of 1855; and the remainder, principally covered with forests, still remains in a state of nature, that the next agricultural generation may not, like Alexander, weep for lack of new worlds to conquer.

The climate of the island is particularly favorable to agricultural pursuits. Indeed, it is stated on reliable authority that our farmers enjoy, on account of the peculiar temperature of the climate, *forty more working days* in a year than those who live above the highlands or west of the Hudson; an assertion which would appear too extravagant for belief were it not sustained by an almost invincible array of facts.

This most valuable peculiarity of climate is attributable far more to the position of Long Island than to its latitude. The influence of the sea—as in the case of all islands—renders the

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temperature much more equable than at places situated in the same latitude in the interior of the continent.

The effect of the gulf stream, also, which passes near to our southern coast is very apparent, in increasing the temperature, and rendering the severest winters more mild and less destructive to vegetation. Our insular position, too, gives to the atmosphere a constant humidity which it would not otherwise possess, and almost entirely prevents suffering from intense heat or long continued droughts.

These are important considerations, and when taken in connection with the proximity and ease of access to the great city of New York, which we enjoy, give to Queens advantages not possessed by any other county in the Union in an agricultural point of view.

That these advantages are not unappreciated is evident from the vast amount of fruit, vegetables and grain annually sent to the all-consuming adjacent city, amounting, several years ago in the single item of market-garden produce to over half a million of dollars; and, also, from the fact that in 1850 (the date of the latest national census I have before me) the ratio of farms in the county to dwelling-houses, was as 1 to $2\frac{3}{4}$, or more than one farm to every three dwelling-houses, or to every four adult male inhabitants.

The extent to which the market-gardening business just referred to has increased within the last few years, especially in the western section of the county, may be estimated from the fact that one single proprietor, the produce of whose farm a dozen years ago averaged but two wagon loads per week, now devotes to asparagus alone one hundred acres, to cabbages eighty acres, and to currants forty acres, and has enclosed three acres and a half under glass in order to compete with Norfolk and Charleston in the production of early cucumbers, radishes and salad.

From present appearances, in a very few years all that portion of the county most nearly connected with New York will assume the appearance of one vast market garden, which will drive before it to the eastward all farms of grain and hay, itself to be driven back in turn when the march of improvement shall demand the surrender of the soil to purposes of building.

And yet, in the very centre of this county so favored by its climate and its position, is a vast tract allowed to remain almost

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wholly in a state of nature. No one subject can be, or at any rate ought to be, of more interest to every Queens county man, than that of the Great Hempstead Plains, and their capacity for improvement.

Viewed simply as a natural curiosity they are of much interest, but when we consider the great material importance which they possess, this interest is ten-fold increased. I will not enter upon the subject of the causes which produced such a singular and apparently anomalous formation; space forbids; the subject alone is sufficient for one essay; but in the hope that before many years be passed some means may be found by which they can be rendered more available and productive of wealth to the county, I refer all who may be interested in their history, and in the various plans proposed for rendering them fit for cultivation at a moderate expense, to the very able and interesting paper by Winslow C. Watson, Esq., previously referred to; to the proceedings of the committee of 170 from the American Institute, who visited and explored the plains in 1847, and resolved "that these lands so long left in a state of nature, are of immense value for tillage for the vine, mulberry, orchard, garden and field productions, and fitted to reward the appropriate investment of money and labor in their good cultivation, to the full extent that can reasonably be desired;" to the letter read before the Farmer's Club of New York on the subject from Dr. Peck, who is entitled to the greatest credit for his indefatigable perseverance in bringing this matter before the people and to the attention of learned societies; and to the exceedingly interesting remarks of John Harold, Esq., on the subject, published in the Transactions of the American Institute for 1859.

Sketch of the History of the Queens County Agricultural Society.

As early as 1818 or '20 an attempt was made to establish a society for the promotion of agriculture in Queens county, and for a short time such a society existed under the presidency of Hon. Rufus King. This, however, like too many worthy institutions of a similar nature soon died out for lack of support, and for many years Queens county contained no association whatever devoted to the interests of her most important branch of business. The Executive Committee of the State Agricultural Society, which at that time was energetically endeavoring to establish local or branch societies throughout the State, took the matter

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in hand in 1841, and at a meeting held at Niblo's on the 21st of July of that year appointed a special committee "to make arrangements for the organization of an Agricultural Society for Queens county." This committee consisted of two representatives from each town in the county, as follows:

From Newtown	Grant Thorburn.
do	Garret Cowenhaven.
Flushing	John W. Lawrence.
do	Effingham Lawrence.
North Hempstead	Singleton Mitchell.
do	Robert W. Mott.
Oyster Bay	John Welles.
do	Albert G. Carll.
Hempstead	John Beedill.
do	Edward H. Seaman.
Jamaica	William R. Gracie.
do	John Johnson.

The committee appears to have entered upon its duties immediately, and so energetic and successful was its action that in a very short time the preliminaries had been arranged, and a society of which Effingham Lawrence, of Flushing, was president, and Albert G. Carll, of Jericho, secretary, was established October 9th, 1841.

The first name upon its roll of members was that of Singleton Mitchell, for some years vice-president, and subsequently president of the society. The season was so far advanced at the time of the formation of the society that it was considered inexpedient to attempt having a fair that year; but early during the next season the necessary preliminary arrangements were commenced for holding one in the fall, and on the 13th of October, 1842, took place the first strictly agricultural exhibition ever held in Queens county—a fair which the records of the society state to have been both "well attended and creditable to the county." The address on this occasion was delivered by Hon. Wm. T. McCoun, vice-chancellor of the State, and subsequently president of the county and State agricultural societies.

Increased effort was made in 1843 to insure the success of the second annual fair, and several new features were added, such as offering premiums for the best "field crops," etc., and requiring a statement of the mode and expense of culture. At this fair, we

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are told, there was much competition for the prizes, and the number and variety of the articles exhibited, especially in the class of household manufactures, was most encouraging.

The address at this exhibition was delivered by Hon. D. S. Dickinson, then Lieutenant Governor of the State, since so distinguished in many positions, and whose name is now specially endeared to every loyal heart by the patriotic manner in which he has avowed his love of country rather than of party.

It will be observed that the dates of the early fairs of the society were uniformly considerably later than at present; that of 1842 being October 13th; 1843, October 17th; 1844, October 10th; 1845, October 9th; 1846, October 7th, etc., while all the more recent exhibitions, with the exception of that of the present year, which was unavoidably postponed into October, have been held in September—usually between the 20th and 30th.

The first two fairs were held at Hempstead, as being more central than any other village of the county; the third was at Jamaica; the fourth again at Hempstead; the fifth at Flushing; since which time they have taken place alternately at Hempstead, Jamaica and Flushing. From its water communication with New York, and extensive nursery gardens, those held at the latter village have usually been the most successful both as to the numbers in attendance, the articles exhibited, and also, (last, but not least,) in a pecuniary point of view. At the first fair held at Flushing, in 1846, we are told that there were probably 8,000 persons present, the display of stock, etc., being much larger than on any previous occasion, and altogether the affair by far the most successful that had yet taken place. Perhaps, however, the glowing description which the records show of that exhibition was the more "*en couleur de rose*" from the contrast which it presented with the fair of the preceding year, on which occasion the weather was, unfortunately, exceedingly unpropitious.

About the year 1847, and from that time until 1851, the society seemed to be under a cloud. Indeed, had it not been for the regular and certain income of $91, received annually from the State Fund, it is probable that it could not have been sustained. In 1848 the membership fell to less than one hundred, and as late as 1850 did not exceed two hundred. Almost every organization at some period of its history experiences a similar season of depression, generally arising from a luke-warmness among the original members after the novelty has worn off, and before the

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beneficial effects of the society are sufficiently apparent to enlist a very general support. We may hope and believe, however, that the society of which I am writing, having passed through its hour of trial, and become firmly established in the hearts of the farmers of Queens, will never more be subjected to difficulties of this kind. Since the year 1850 its prosperity has been unbroken, its sphere of usefulness constantly increasing, and every omen predicts a most flourishing future. The high degree of prosperity which it has enjoyed since that date, compared with the rather indifferent success which had attended its previous career, is forcibly shown in a late statistical report of the secretary, in which he states that the total receipts for the last ten years have been $15,709.18, while during the first ten they amounted to but $4,029.82.

In 1857 the society was regularly incorporated under a general law passed in 1855, and received from the office of the Secretary of State the following certificate, now on file in its archives:

Certificate of incorporation of the Queens County Agricultural Society, under and pursuant to an act of the Legislature, entitled "An act to facilitate the forming of Agricultural and Horticultural Societies," passed April 13th, 1855.

We, John Harold, John Bedell, Joseph Tompkins, William T. McCoun, B. W. Doughty, Samuel T. Jackson, Uriah Mitchell, Jas. P. Smith, Samuel L. Hewlett and Jeremiah Valentine, citizens of the United States, and of the State of New York, hereby associate ourselves together for the purpose of forming a society for improvement in agriculture, horticulture and the mechanic arts, as hereinafter stated, and to be incorporated under and pursuant to the act entitled "An act to facilitate the forming of Agricultural and Horticultural Societies," passed April 13th, 1855; and for that purpose we do certify and declare:

1st. That the corporate name and title of such society shall be the Queens County Agricultural Society.

2d. The business and objects of the said society are improvements in and encouragement to agriculture, horticulture and the mechanic arts.

3d. The property and business of the said society shall be managed by six directors, as prescribed by said act, which six directors, together with the president, vice-president, secretary and treasurer of the said society, shall constitute a board of managers; and Robert Willets, Joseph Tompkins, Robert T. Smart, Samuel M. Titus, R. Eugene Thorne and Daniel R. Suydam, shall be the first directors thereof; and shall, in conjunction

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with the president, vice-president, secretary and treasurer of the said society, conduct the business thereof for the first year.

In witness whereof we have set our hands and affixed our seals the 30th day of November, 1857.

Signed JOHN HAROLD,
JOHN BEDELL, &c.

The certificate is sealed with the State seal, dated Albany, 3d day of December, 1857; N. P. Stanton, Deputy Secretary of State.

It is unnecessary to enter into the details of each year's transactions. Suffice it, that in 1859 the society included 759 members, and that at the present time, so successful was its last fair, held on the 3d of October, when nearly 800 entries were made of articles for exhibition, and the total receipts amounted to about $2,000, that its membership now exceeds 900.

Too much praise cannot be awarded to the ever energetic and indefatigable secretary, to whose untiring efforts to promote its interests must be attributed in a great measure its success and present prosperous condition.

An increase from a hundred members in 1848 to nearly a thousand in 1861; from an amount of receipts insufficient to pay its premiums in 1848 to over $2,000 in 1861, gives evidence of a spirit of progress of which any county in the land might be proud, and plainly proves that, to use the words of Mr. Harold in his latest report, "QUEENS COUNTY WILL SUPPORT ITS AGRICULTURAL SOCIETY."

From the time of its settlement to the present, we have seen that Queens has continued essentially an agricultural county. Isolated manufacturing establishments have from time to time been put in operation, and several are still pursuing a successful career; but these are exceptional instances; and the chief interest of our county still is, and we may trust ever will remain, that of agriculture.

The spirit of enterprise and desire for improvement everywhere characterizes our farmers; first, horse-power, and then steam, have been substituted for the rude hand implements of former times; new and convenient barns, and out-buildings of all descriptions, have taken the place of the old, red-painted shanties, until the value in such improvements exceeds that of any other county in the State our equal in population, and together with the value of the land and implements employed reaches the enormous sum of

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nearly twenty million dollars; fields have widened and widened until each score of acres has become a hundred; year by year the stream of produce for the great adjacent city, met by the returning stream of gold, increases; year by year our farmers gain new laurels at State and national exhibitions, and while the march of improvement continues we need not fear that Queens will not keep step to its music.

She has given two presidents to the State Agricultural Society; her most honored living son—honored in many ways—represented the Empire State on the committee which organized the national society; while another, ever active and untiring in the cause of agriculture, even now superintends the arrangements of our State fairs.

Noble, honored Queens! Let us rejoice in the belief that her practice will ever accord with the glorious motto of our Empire State—"EXCELSIOR."

ADDRESS.

THE PATRIOTISM OF THE PLOUGH. BY RICHARD C. MCCORMICK.

Fellow Citizens:

Oriental story tells us that Mahomet Bey, king of Tunis, was dethroned by his subjects, but having the reputation of possessing the philosopher's stone, he was restored by the Dey of Algiers upon promising to communicate the secret to him. Mahomet, with pomp and solemnity, sent a plough, intimating that agriculture is the strength of a kingdom, and that the only philosopher's stone is a good crop, which may be easily converted into gold.

From an earlier age than that of the cunning Bey, even from many centuries before the Christian era, the plough has held the first place among the implements of agriculture, and been the acknowledged symbol of that all-important art. Poets and orators have conspired to sound its praises, statesmen and soldiers have joined their lavish eulogy, and invention has been tasked to its constant improvement. Nor is there any nation in history that has attempted to cultivate the ground without it, excepting some barbarians destitute of every art and science.

A literal history of an implement so conspicuous in the progress and civilization of the world, and a recapitulation of some of its peaceful, but not the less important triumphs, from its first rude construction by the ancient Egyptians, when it was alto-

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gether of wood, and often little more than the crooked limb of a tree, to its present graceful metallic form, and the successful application of steam as a propelling power, might prove alike entertaining and instructive, and well occupy the passing hour. But the attitude of our beloved country, so different from that of a twelvemonth since, and of absorbing interest to all, suggests the greater propriety of a reference at this time to the prompt and trusty patriotism which has ever distinguished those who have

"Seized the plough, and greatly independent lived;"

the honest tillers of the soil, to whose pure and devoted love of country and earnest defence of the right, the records of all ages bear copious testimony; whose exalted principles and good deeds stand as firm as the everlasting hills, and who "are tied to their country and wedded to its liberty and interests by the most enduring bonds."

The story of Cincinnatus has lost none of its beauty or significance by its frequent repetition. To after ages no less than to the past and the present, it will wear a charm and eloquence second to no incident embalmed in the pages of classic history. And Washington's love of the plough and its rustic associations, when shall we grow weary in its admiration? When shall we tire of reading how in the rural shades of Mount Vernon he planned the successful administration of a nation's affairs, and at the same time cultivated with marvelous skill, a series of farms, either of which would at this day be considered a sufficient care in itself?

In no land has the sturdy and unflinching patriotism of the men of the plough been more strikingly demonstrated than in America. If we confine our attention to the catalogue of brave and generous spirits who co-operated with Washington in securing the liberties we now enjoy, we shall find many who went from the plough to the camp, and who learned by rustic hearthstones the great principles of truth, justice and liberty which they so perseveringly maintained, often in the face of the most disheartening obstacles, and with a bravery and resolution never surpassed in the history of any people.

Joseph Warren, the intrepid orator and self-sacrificing leader, whose memory shares the immortality that rests upon the spot where he fell, was the son of a Massachusetts farmer. The

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annals of history cherish the name of no more noble and fearless patriot. What honors are not due to him who, undismayed, bearded the British lion, to show the world what his countrymen dared to do in the cause of liberty?

Israel Putnam, who at the beginning of hostilities between the colonies and the mother country, on hearing of the battle of Lexington, left his plough in the field, and without changing his clothes, repaired to Cambridge, riding in a single day one hundred miles, and entering upon a vigorous defence of his country, which was continued until paralysis impaired the activity of his body, was a Connecticut farmer and a bluff old hero, whose name is indissolubly connected with the long and angry struggle which made us a free people.

Francis Marion, who was so small at his birth that, according to Weems, "he was not larger than a New England lobster, and might easily enough have been put in a quart pot," but whose valorous deeds made him a constant terror to his enemies, was the son of an humble farmer, and owed what of physical endurance he possessed to the wholesome pursuits of rural life. The "Washington of the South," as he was fondly called, he was a bold, energetic and faithful patriot, and when peace was won, he gladly returned to his quiet plantation near Eutaw, to end his days in the felicities of agriculture. His last words were, "Thank God since I came to man's estate, I have never intentionally done wrong to any one."

Anthony Wayne, one of the most chivalric and indefatigable soldiers of the revolution, whose brilliant achievements at Ticonderoga, Brandywine, Germantown and Stony Point, are consecrated in our country's history, and who in all councils of war, was distinguished for supporting the most energetic and decisive measures—a man whose like we so much need at the present hour—was the son of a Pennsylvania farmer. For his successful conduct of the war in Georgia, the legislature of that State made him a present of a valuable farm, but his country would not suffer him to retire to its enjoyment, and he died in active and illustrious service as commander-in-chief of the army of the United States.

Daniel Morgan, always described as a man of powerful frame and sterling courage, and whose riflemen for their sure and deadly aim were a terror to the British, was a farmer and wagoner in Virginia, though born in New Jersey. After rendering remarka-

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bly efficient service throughout the revolution, and winning especial distinction at the battle of Cowpens, for which Congress voted him a gold medal, he returned to his farm, and reluctantly left it in 1794, to command the militia organized to quell the whiskey rebellion in Western Pennsylvania, and soon afterwards to serve a term in Congress. Morgan, though somewhat dissipated in early life, was in later years a fine type of the Christian soldier, a class happily not extinct in the American army, who going to battle in a holy cause, did not forget to ask Divine assistance. He said he trembled at Quebec, and in the glow of early morning, when approaching the battery at Cape Diamond, he knelt in the snow and prayed; and before the battle of the Cowpens, he went into the woods, ascended a tree, and there poured out his soul to God for protection.

Richard Montgomery, whose praises were commemorated by the eloquence of Chatham and Burke in the British parliament, and of whom the prime minister (North) in a speech acknowledging his worth, and reprobating the cause in which he fell, concluded by saying, "Curse on his virtues, they have undone his country," left his attractive farm upon the Hudson, and his lovely wife, the daughter of Robert R. Livingston, "not, as it proved, to conquer Quebec, but to win a mightier victory over death itself."

Nor should I, addressing a Long Island audience, omit to mention Nathaniel Woodhull, a patriot and soldier worthy of any age and people, who by his heroic life and martyr death brought imperishable honor to his name, and the sacred cause in which he so early and devotedly served. He was born on an extensive farm at Mastic, in Suffolk county, and his early life was devoted to assisting his father in its industrious cultivation. He went from the plough to the public service, carrying with him an integrity of purpose and energy of will which ever distinguished and ennobled his career both as a statesman and a warrior. His faithful but ill-requited efforts in the defence of the soil of Long Island from the desecrations of a ruthless invading foe, should not be forgotten while the surging surf breaks at Rockaway, or the sparkling spray moistens the meadows of Montauk.

Nor in Queens county can I forget Marinus Willett, who, born in Jamaica, in 1740, the youngest of six sons of Edward Willett, a respectable farmer, early espoused the republican cause and ably filled many prominent and trying civil and military positions, from his command at St. John's, to his expedition to

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treat with the Creek Indians in 1792. He never shrank from danger or responsibility when the general weal required him to expose himself, and has been justly denominated "one of the best specimens of the patriots of the revolution." It is discreditable to Jamaica that no stone commemorates his honored name and fame in the village of his birth.

And thus the enumeration of revolutionary heroes, who sprang from the plough, might be indefinitely continued, but it is unnecessary. It is as well authenticated as history itself that in the patriot army of the revolution, both in its command and in the rank and file, they were ever honorably conspicuous, and among the truest and most unwearying champions of the continental cause. Especially is the proud commonwealth of New York, which their cultivation has so greatly adorned, consecrated by victories in which they shared. In the eloquent language of Bancroft: "Not a rock puts out from the Highlands but the mind's eye sees inscribed upon it a record of deeds of glory. Not a blade of grass springs at Saratoga but takes to itself a tongue to proclaim the valor of patriot husbandmen."

And in the brief but important struggle of 1812 the rustic soldiers were proportionately great and serviceable. The same patriot spirit animated the men of the plough and contributed largely to the speedy success which attended our arms. So, too, in the war with Mexico where all behaved most gallantly, there were no regiments more distinguished for their valor than those from the country districts.

And now, when for no adequate cause, a section of our hitherto united and prosperous republic has raised the black flag of rebellion and threatens the destruction of the government which Washington and his immortal compatriots formed, and the capital which bears his honored name, the patriotism and bravery of the husbandmen is no less marked and timely. When the world witnessed with astonishment the spontaneous uprising of a loyal and long forbearing people in defence of their insulted government; an act which a popular English writer, less prejudiced than many of his countrymen, has pronounced "as grand and noble as any which we have seen or are likely to see in our generation;" when the summons for volunteers in the war for the Union and the Constitution was sounded throughout the North, foremost to rally were the men of the plough. As in the fiery days of seventy-six, from town and village,

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"And, from the sods of grove and glen,
Rose ranks of lion-hearted men
To battle to the death."

Of the thirty-eight regiments recruited in this State, under the first requisition of the Governor, I have it from the records of the Inspector General's office that sixteen were wholly made up from the rural districts, and of the later organizations a still greater proportion are from the country. The muster rolls of other States develop the same fact, and in the severe but unfortunate encounters had with the enemy to the present time the rustic volunteers have often displayed a courage worthy of veteran troops.

But to evince a true patriotism even in time of war, it is not requisite that all should leave their homes or bear arms. In many other ways a devotion to country and support of the government may be effectively shown by the men of the plough. No class of the people may remain at home and render more important service. Every acre under cultivation is an encouragement to those who are fighting our battles, and an argument against their opponents. If the crops are large, the war may be carried on without devastating the country, and many of its terrors be but lightly felt in States so remote from the scene of conflict as our own. Extra diligence and the blessing of heaven will enable the prudent and industrious farmer, by augmented planting and culture, to offset all the increased taxes levied upon him; indeed our barns may continue to supply a large foreign demand for food, and, if needed, again relieve by gentle charity the hungry millions to whom the earth has failed to give its accustomed yield. What a rich return for the bread cast upon the Irish waters in the sorrowful days of the famine, have we now in the ready and earnest patriotism of Corcoran and Meagher, and their impetuous companions, who, entwining the green flag of Erin with the Stars and Stripes, are raising their strong arms in powerful defence of their adopted land, and who at Manassas and Lexington have so nobly maintained the traditional bravery of their race!

It is not surprising that agriculture has, in all ages of the world, and in all countries, been a primary object of solicitude to the State, and it is a circumstance worthy of remark, says an eminent American writer, "that it has ever received the greatest encouragement and attained its highest perfection in those

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States, ancient and modern, which have been most distinguished by their free institutions, the magnitude of their power and achievements, and the grandeur of their public policy."

In one of his delightful essays, Cowley, whose quaint observations on rural life have lost none of their force by the lapse of two centuries, falls into the wonder and complaint of Columella, how it should come to pass that all arts and sciences, and even "vaulting, fencing, dancing, attiring, cookery, carving and such-like vanities, should all have public schools and masters; and yet that we should never see or hear of any man who took upon him the profession of teaching this so pleasant, so virtuous, so profitable, so honorable, so necessary art."

Though the subject of much favorable consideration for many years, it has remained for the nineteenth century and the New World to first provide what Columella and Cowley wisely suggested. In our own free State, an empire in itself, the work so well begun by Clinton, Watson and Mitchell, in the early part of the present century, has been steadily advanced by Delafield, King, and other intelligent and unwearying friends of the farmer. The Agricultural College at Ovid, in Seneca county, whose President addressed you last year, and is now temporarily giving the State the benefit of his military experience in the responsible capacity of Inspector General, is truly a noble institution in its every department. Its "pattern farm" would have delighted Governor Clinton. That one who for many years presided over the Society whose twentieth anniversary we to-day celebrate, and who is now with us to encourage the present exhibition, should have been influential in the establishment of such an invaluable institution, and is now the chairman of its Board of Trustees, is an honor which we should not fail to appreciate. Among those who have omitted no opportunity to foster with generous hand and heart, the advancement of the best interests of the American husbandman, the name of John A. King occupies a deserved and enviable prominence.

The gratifying fact of the successful inauguration of the Agricultural College in this State, I have cited in illustration of the high esteem in which the art of agriculture is held in America. England as yet has no such institution, and in the invention and application of valuable implements of husbandry we may fearlessly challenge the mother country. Who can have forgotten the applause showered upon the American reaper when it was

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first shown to the amazed Mr. Bull, and what ploughs have won his approbation more completely than some of those contrived by American ingenuity?

Very much has been done to stimulate inventive genius and especially that pertaining to agriculture, by societies like the one in whose annual festival we now participate. Writing of the Agricultural Society formed in Philadelphia in 1785, or thereabouts, Washington expressed the wish "that every State in the Union would institute a similar one;" a desire which has been fulfiled at least in the free States, and in none with better results than in our own. It would be difficult to exaggerate the benefits accruing to every department of social industry, which may be traced directly to the operations and influences of that patriotic and enlightened association—the New York State Agricultural Society. And, in like ratio, have been the advantages resulting from well established and carefully conducted county societies.

Within the twenty years' existence of this Society a marked improvement has been realized in the rural economy of the county. The distribution of seeds and agricultural documents through its agency has been of inestimable value to the husbandman; while these annual gatherings have excited and maintained a lively and profitable interest in all that pertains to his honorable calling. How superior to those of twenty years since are the cattle, worthy the poetic pen of Virgil or Bloomfield, and the pencil of Landseer or Rosa Bonheur, to-day the admiration of this intelligent assemblage. Where in a single rural county shall we find more choice or valuable horses than those proudly prancing in yonder ring? Apart from the secondary, but by no means unimportant quality of speed for which our stock has a national renown, where may we find for all purposes of service and endurance more faultless or desirable breeds? And how far in advance of what it was at the origin of this society, is the character of the implements of agriculture and horticulture used in the county, and of which so many ingenious and useful specimens are here gathered for our inspection, many of them the handiwork of our own citizens, and as such especially worthy of our attention. When the patriot farmer of Mount Vernon made a tour of observation upon Long Island in the year 1790, he dotted down as was his custom on all occasions much interesting memoranda. Among other state-

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ments in his journal, lately published, is one of the average yield of the principal crops, which is given as follows: Indian corn, twenty-five bushels; wheat, fifteen; rye, twelve, and oats fifteen to the acre. How much beyond this is the average of these crops at this time, and what other influence has encouraged the improved methods of culture now in vogue and with such good results, one-half as much as that quietly but constantly exerted by this society. Such results are more than an equivalent for all the care and expense with which its management has been attended. They are a substantial reward which should satisfy the most skeptical that this organized and sustained effort to promote the rural tastes and economy of the county has not been in vain. They should entitle the society to the confidence and practical coöperation of every farmer, gardener and mechanic in the county. They should gain for it the hearty support of all classes of the people, for it is well calculated to subserve the best interests of all.

In the old world such societies are maintained with jealous pride. Travelling through Great Britain at the season when their annual exhibitions were occurring in rapid succession, I was fortunate enough to be present at a number. No recollections of foreign observation are more agreeable. The fashion of the court, the glitter of the palace, the formality of rank, were all forgotten in the pleasant commingling of the peasant and duke. In many instances the products of the royal farms were displayed by the side of those of the cottager, and the Queen and Prince were among the most anxious competitors. They were shown no particular favor, however, and when successful in carrying off a prize had the satisfaction of knowing that it was fairly won.

On more than one occasion I went to Windsor, not to survey the wonders of the moss-grown Castle so long the home of royalty, and so opulent in historic memories, but to loiter in the adjacent fields and pastures, the crown farms, to which I was kindly admitted, and where are the abundant evidences of that intelligent, I may say enthusiastic, taste for rural pursuits which constitutes so pleasing a feature in the domestic character both of Briton's virtuous Queen and her estimable consort,—where are the gardens, which so bountifully supply the palace tables with every vegetable luxury in its appropriate season; where are the sleek Short-Horns and Devons, upon whose buttery cream the royal

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babies grow fat and saucy; and the symmetrical Suffolk and Berkshire pigs in whose growth and beauty Prince Albert is said to take but little less interest.

So too the present Emperor of the French, and his fair Eugenie, have signalized their veneration for the plow, and done very much to promote the thrift of intelligent agriculture in their populous kingdom. The imperial farm occupies much of their attention, and abounds in indications of a cultivated appreciation of rural affairs, while the inventors of improved implements of husbandry have no more generous patrons. Lately the Emperor has exemplified his acknowledged sagacity by giving to each soldier at the camp of Chalons a small garden which he is to cultivate and keep in order, and rewards are to be given to the most careful laborers. Henceforward the troops will devote part of their leisure time to practicing agriculture during the summer, and in winter each regiment will have classes for agriculture and horticulture.

But royalty can have no monopoly of agriculture. The tillage of the soil and its attendant felicities may be enjoyed by all classes, and if peculiar inducements and advantages are granted to one husbandman more than to another, I think they are to him who confines his attention to a small farm. The widow of Helvetius said to Napoleon: "You cannot conceive how much happiness can be found in three acres of land," and it has grown to a proverb that "a little farm well tilled," is the next best thing to "a little wife well willed." In the matter of profit there can be no doubt that hereabouts a few acres may be made to yield a greater proportionate return than an extensive farm. Indeed the rapidly increasing value of land in so close proximity to a great and expanding city, as is the most of that embraced in our county, renders it improbable that large farms can long be retained but by the wealthy few.

For many years large portions of the county have been devoted to market gardening, a laborious, but usually highly profitable pursuit, and one for which its soil would seem especially adapted. The rumbling music of the heavily laden wagons which nightly crowd our avenues on the way to the metropolitan markets is far more pleasing to the ear than the roll of the ponderous carriages of artillery, or the roar of besieging guns.

Not only will our fertile county with every year become a more important source of supply to the markets of New York, furnish-

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ing the coarser vegetables in keeping with every demand, but to the whole country its nurseries and flower gardens are likely to be quite as valuable as in years past.

Since the troublous days of the revolution, when with unwonted consideration, the British General (Howe) stationed a guard to protect the nursery of William Prince, which had been established as early as 1737, under the title of the "Linnæan Botanic Garden," this beautiful village has been famous for the propagation of trees and shrubs. More than any other place in the State, or perhaps in the Union, has it, through the intelligent industry and good taste of the nurseryman, contributed to the arborical embellishment of city and country. When the old Laird of Dumbiedikes gave to his son the memorable injunction, "Jock, when ye hae naething else to do, ye may be aye sticking in a tree; it will be growing, Jock, when ye're sleeping," his advice had a deep significance, which few are wise enough to profit by. Here every avenue and street and garden bears living and luxuriant testimony to the sound philosophy of the precept.

In some portions of the old country there is, or was, a law requiring every man at the birth of a child, to plant a fruit or other tree in the street or highway. Every young man, on arriving at years of discretion, or twenty-one, is required to plant two or more trees in the street; and again, two or more upon being married. The Germans at one time compelled every man to plant a certain number of trees upon the highway before he could marry, and certainly he who would not comply with so reasonable a demand, richly deserved all the dire privations of bachelorship. The tree-planting societies of New England have accomplished a noble work, as the well-shaded highways adjacent to Boston gratefully attest, and it would be well if our State Legislature would enact a law commanding the planting of shade and fruit trees in all public places, and coupling with it a penalty for the wanton injury of the same, and particularly for the vandalism which encourages the destruction of old trees, and from which, even here, the venerable and majestic oaks under whose widely extended shade the followers of George Fox worshipped in simplicity and truth, were only saved by the timely protection of John Bowne.

My veneration for trees is akin to that of Grattan, who used to say: "Never cut down a tree for fashion sake. The tree has its roots in the earth, which the fashion has not." A favorite old

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tree stood near his house at Tinnehinch, and a friend thinking it obstructed the view, recommended him to cut it down. "Why so?" said Grattan. "Because it stands in the way of the house." "You mistake," replied Grattan, "it is the house that stands in the way of it, and if either comes down, let it be the house."

When Lafayette retired to the chateau of Lagrange, and cultivated the soil with an enthusiasm like to that of his illustrious friend at Mount Vernon, he planted a great number of apple and pear trees. At first his neighbors laughed at his plantations, but when they soon perceived that he obtained abundant crops from them, and that the cider made at Lagrange was excellent, and sold well, they also began to cultivate trees. Whatever the defects of the soil, or climate, or the annoyance of insects, I am convinced that the excellent market for fruit which is open to this county, should lead to a more general and persevering effort in its growth than has yet been made. There are varieties which may in ordinary seasons, and with ordinary care, be grown to gratifying success. The specimens to-day on exhibition amply establish the assertion. I am informed that at the recent fair of the State Society the display of fruit was not superior to that here shown as the product of a single county, and it is doubtful whether the pear orchards of Manice and Briggs are surpassed by any in the State.

Not less profound than has ever been my admiration of the trees which so richly ornament and shade this favored village, is my appreciation of the beautiful flowers which at all seasons decorate its graceful gardens and green-houses, and which to-day form so attractive a feature in the superb variety of nature's wonderful works, gathered beneath this capacious tent. Examining each peculiar tint, and inhaling each exquisite fragrance, of these dainty creations of sunshine and of shower, I have experienced a feeling similar to that which excited Linnæus, who when he first saw the English Downs all aflame with the golden flowers of the furze, knelt down and thanked God for having made anything so beautiful. The varied splendor of the flowers, who shall describe it? "They toil not, they spin not; and yet I say unto you, that Solomon in all his glory was not arrayed like one of these."

That sturdy British reformer, Cobbett, who was more successful in agriculture than in politics, while resident at North Hempstead, in this county, in the early part of the present century,

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used his ready pen in a simple but masterly exposition of the requirements of practical husbandry. His voluminous writings cluster with common sense, and a radical or Quixotic sentiment, here and there, may be pardoned in view of the many valuable hints and suggestions, the result of an unusual experience and peculiar powers of observation, with which his works on rural subjects are replete. From his passionate fondness of the grosser vegetables, especially the Ruta Baga turnip, which he first introduced in America, and cultivated with great success, it might be supposed that he had no better appreciation of flowers than had Wordsworth's stoic, Peter Bell. But not so. In his "American Gardener," which may be read at the present time to advantage, he rebukes those who think that flowers are of no use, and exclaims: "For my part, as a thing to keep and not to sell, as a thing the possession of which is to give me pleasure, I hesitate not a moment to prefer the plant of a fine carnation to a gold watch set with diamonds."

In this light I wonder that every farm has not its flower garden, however small. In its perfection it is of course unattainable without great care and expense, but a single dollar a year, judiciously laid out in seeds and bulbs, will, from one tiny plat, yield, from the first crocus to the last chrysanthemum, a perpetual joy. It is indeed passing strange that there is not a more general enthusiasm in the cultivation of flowers. It has been said that they are the alphabet of angels, wherewith they write on hills and plains the mysterious truth. Certain it is that they are ever suggestive of the pure and holy, and refining to those who live in their gentle presence.

Lafayette, visiting the mother of Washington at Fredericksburgh, found her busily engaged in weeding her flower garden, and the incident suggests the oft repeated assertion, that the fair sex can find no more wholesome pastime than that given to floriculture. They may do much in the training of the rose to brighten their own cheeks with its blushing hues, and in the sweet air of the garden find an invigoration which no other source can provide. At this time, our maidens should tend their gardens with peculiar care, for when their lovers who have gone to war for the Union and the Constitution shall have redeemed the dear old flag from the disgrace which heartless traitors and rebels would heap upon it, and return to their welcome embrace, covered with the glory and dust of battle, will they not merit garlands

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choicer than ever graced the brows of Roman victors or adorned Grecian heroes flushed with the triumph of their classic arms?

Fellow citizens: despite the unhappy and much to be deplored distractions of our beloved country, we have abundant cause for gratitude. While other States and counties have been ravaged by the actual presence of war, in its most aggravated form, we feel its terrors but remotely. The kindly suns and rains of spring and summer have prospered the seed which in humble faith we entrusted to the generous soil, and the golden days of autumn are bringing forth a plenteous return. Neither pestilence nor famine has cast its blighting shadows over our rural homes, and in the ardor of our congratulations upon this auspicious anniversary, we should not forget the thanks due to Him

> "Who has bless'd the sod,
> And crowns the harvest land."

Let us esteem it a duty, no less than a privilege, to improve the rare opportunities allotted to us for a peaceful and remunerative cultivation of the soil. Let it not be a complaint that our young men show a tendency to concentrate in towns and cities, and a growing disposition to prefer other pursuits to that of tilling the earth "in the sweat of the face." Excellent as has been the influence of our agricultural societies, and marked as is the yearly improvement in the management of the farm and garden, let us ever remember that "Agriculture in its true sense is an encyclopedia in itself—requiring great knowledge, fine powers of observation, high mental cultivation, assiduous thought and study, and opening its arms to ingenuity and invention."

We need many more thorough farmers who exemplify the best modes of culture and management; and show—by their farms, their stock, their crops and their success—the most direct way of making a living—and a good one, by the culture and produce of the soil. Such examples are of incalculable influence upon the prosperity of the country, and it is an influence which will never cease. As Mr. Everett recently said to the farmers in the northern part of our State: "A well conducted farm in a country town, with everything for utility and convenience, and nothing for ostentatious show, is itself an Agricultural College where the whole community is taught without expense to themselves or to the State."

Above all it should be remembered that so true as it was when poor Richard penned his familiar couplet

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"He that by the plow would thrive,
Himself must either hold or drive,"

is it now, that the husbandman who would succeed in his vocation must give to it his personal attention. With all the improved instruments and the ingenious inventions and appliances of the advanced age there has yet been no discovery by which he who would live by the plough may confide it to another and hope to prosper. It was through a misapprehension of this stubborn fact that Burns failed at Ellisland. It is in neglect of it that every year adds to the list of unsuccessful farmers in the circle of our own immediate acquaintance. There is probably no vocation in which the closest application is more necessary to success. And the farmer who allows his attention to be drawn from his acres or thinks to cultivate them well by proxy, commits a mistake which, sooner or later, he must keenly realize. In this view it may be regretted that the call to arms which has lately resounded throughout the land, has attracted so many from the rural districts. Others could have gone from home at a smaller sacrifice, but none have gone more cheerfully; and gladly as the men of the plough would hail the day, when in happy fulfillment of the scripture prediction, an all wise Providence "Shall judge among the nations, and shall rebuke many people; and they shall beat their swords into plough-shares, and their spears into pruning hooks," I am persuaded that they clearly comprehend the fact that peace, however desirable, is not worth the having except upon a basis grounded in national honor and a recognition of the supremacy of the law.

For the maintenance of their country's honor and unity, and the defence of the government, which "our enemies themselves being judges," is the freest and best the world ever saw, they will in noble forgetfulness of self, do manful battle, wherever summoned to meet the vaunting hosts of rebellion, until permanent peace is conquered through victory; and in a sense which Swift did not intend, give new and lasting significance to the opinion of the fabled king of Brobdignag, "that whoever could make two ears of corn, or two blades of grass, to grow upon a spot of ground, where only one grew before, would deserve better of mankind, and do more essential service to his country, than the whole race of politicians put together."

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RENSSELAER.

B. P. JOHNSON, ESQ. :

Secretary State Agricultural Society.

SIR—I have to submit to you the statistical report of the Rensselaer county agricultural and manufacturers' society, for the year ending January 21, 1862.

On the 21st January, 1862, the annual meeting of the society was held at its rooms in the city of Troy, and elected Jason C. Osgood, president, five vice presidents, Herman W. Knickerbocker, treasurer, William T. Willard, secretary, and sixteen directors, in accordance with its constitution and by-laws.

The agricultural interests of our county are evidently on the improvement, as was demonstrated at our annual fair in September, and the winter fair at our annual meeting. Indications are manifest, of an increased interest in all our operations. Our mechanics, who claim an interest as manufacturers, are alive to the success of the great work of presenting agricultural and manufacturing interests in juxtaposition; dependent as each is, upon the success of the other, no pains will be spared to foster and advance both, by a community of feeling alike creditable to all concerned.

SEPTEMBER FAIR.

Horses.—The display of horses was fair and creditable to the exhibitors, and presented a greater proportion of useful and serviceable animals of good breed, than of fancy animals, although by no means destitute of the latter.

Cattle.—The display of cattle presented the varieties of Devons, Durhams, native, grade, fat, strings of working, as well as steers and heifers.

Our farmers had full opportunity of contrasting the same with care and deliberation, and fully improved it. We feel there is a deep and growing interest in improving the stock, and this year's exhibition has given additional evidence of progress therein. Our county possesses herds of the finest character from which to draw, for that purpose.

Sheep.—The exhibition of this animal was not large. Our county has not of late years, (partially from want of proper encouragement, and partially from the ravages of dogs), given that attention to wool that it might and should, from its peculiar

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adaptation and character therefor, and which we hope ere long it will, and from the superior specimens exhibited can excel therein.

Fine wool, coarse wool, and carcass sheep, could hardly be excelled at any other exhibition.

Swine.—An excellent show, in character and quality, was presented upon our grounds; and our markets in winter evidence fully how superior in pork.

Poultry.—A very large display of almost all sorts and kinds, all of good and superior quality; amongst which the fancier could gratify his most fastidious admiration, as well as the farmer select for his yard.

Bees.—In this department, abundant evidence was given that apiarians were amongst us, for with a very large and creditable display of hives, bees and honey of our own county, came also an exhibitor of bees and hives from another State; his handling and management of his bees, and the structure of their dwellings, exhibited a wonderful and easy management of the colony, and doubtless contributed to others much important information as to their character, habits, and easy management.

Butter and cheese.—But little more than samples of these articles came before us. Our county is contiguous to several large towns and cities, and these products find a ready market as soon as created; enough, however, came forward to show our dairies produce a superior quality of each.

Farm implements.—A great variety was presented, and no farmer, or farm, be it of whatever character it may, but could have been provided with suitable tools for its culture. Plows, harrows, cultivators, mowers and reapers, stump and stone wall machines, planters and harvesters, as well as all the implements of husbandry abounded, affording to the searching, discriminating users of these implements the means and ability of contrasting them with each other and his own in daily use, and providing a better and labor-saving implement than those in use. If no other advantage accrues from this yearly presentation of farm implements, enough is gained to compensate richly for the time and labor given to their critical examination.

Garden vegetables.—Some rich specimens came to us, enough only to exhibit and prove the best and largest supply ever produced—these are the product of all farms, and many cultivate

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for contiguous city and town markets. There is no lack of product, and of the nicest quality.

Fruits.—Our fair was too early for a full or probably a fair show under this head; yet samples and specimens came forward, to evidence they are and can be produced. Our apple orchards are aged, and not renewed as they should be; this fact is engaging attention, and will in due time be replaced with a better grade of fruits.

Flowers.—Floral Hall teemed with a large and full show of almost every variety, and in this, exhibitors commendably vied with each other for the palm.

Household products.—In this department the useful was predominant in articles exhibited; but that the rising generation might practically see and know how our patriotic mothers clothed their families, the old wool spinning wheel, and the linen flax spinning wheel were found in daily practical operation; this feature of our fair, if not useful, was a great curiosity, and, as intended, a lesson of instruction to a vast number of the rising generation.

Ladies' department.—It gave evidence of art, fancy and industry, exhibiting the greatest variety of fancy and useful articles, possible and practical, produced by the ladies. It would be a severe task to enumerate, or even begin to enumerate the articles sent in; suffice it to say, they eminently characterized an active industry, a fruitful genius for design, and patience in execution, most eminently pertaining to the sex.

Fine arts.—Some fine pictures were exhibited, but no new pieces produced.

Non-enumerated.—A very large class of various and useful articles were exhibited under this head—many from home, and many from abroad. Competition was granted upon home productions, and exhibition given to all others from abroad. Our future lists will be so enlarged as to comprehend a large share of these hereafter.

STATISTICS.

1. *Winter Wheat.*

Crop never large; is not relied upon by our farmers; weight, 55 lbs. per bushel.

2. *Spring Wheat.*

More generally cultivated; crop fair, but rather light; about 20 to 25 bushels the acre; weight 60 lbs.

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3. *Indian Corn.*

More than an average crop, and very good in quality; about 30 bushels the acre; weight, 60 lbs.

4. *Rye.*

Crop very good in quality, and more than an average; 25 bushels the acre; weight, 60 lbs.

5. *Winter Rye.*

Some winter rye, of excellent quality, was exhibited at our winter fair. It is hoped it may be more generally disseminated.

6. *Barley.*

Some excellent samples have been exhibited; less is raised than of other grain; yields about 25 bushels the acre; weight 47 lbs.

7. *Oats.*

Have come in very light; the late sowings were attacked by the *Aphis Avenæ*, and do not average 25 bushels to the acre; weight, 25 lbs. per bushel.

8. *Buckwheat.*

Crop very good; weight, 50 lbs.

9. *Potatoes.*

Crop good; about 90 bushels the acre; but few complaints of rot.

10. *Peas.*

Of good quality; not many raised.

11. *Beans.*

Of good quality; not many raised.

12. *Hay.*

Crop unusually good, as well as the after crop; about 1½ to 2 tons the acre.

13. *Fruit.*

Very light of all descriptions; apple orchards old and decaying, and but few new ones planted.

14. Wheat has escaped the insect generally, and it would be difficult to say what particular variety, from its character, was prominent over others; the season did not develop that fact, though, doubtless, there is a preference.

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15. *Drained Lands.*

We have so few acres in our county, as not to be able properly to report thereon.

16. The general condition of farming is decidedly improving; enquiries are made for the best implements for agricultural purposes, and the farmer is rising from the apathy and lethargy of by-gone days, seeking information from all practicable sources; agricultural reports and papers attract and command his attention; his energy and ambition prompt him to emulate the most successful, and, if possible, to excel the list of them all.

With the blessing of peace again amongst us, we hope an impulse to agriculture beyond all past experience; and, as we hold an excellent soil for very many of the productions of the earth, and ready markets for all we can raise, inducements will not be wanting to develop all the soil, and our ability and information in the noblest calling of man will permit.

Very respectfully,

Your obedient servant,

W. T. WILLARD,

Secretary.

TROY, *January* 31, 1862.

PRESIDENT OSGOOD'S ADDRESS.

Ladies and Gentlemen:

In appearing before you at this time to attempt an address on the subjects of agriculture and mechanics, I acknowledge my presumption in expressing the hope to interest you, especially those of you whose knowledge of at least one branch of this subject surpasses my own. But I am here for this reason: the committee some little time ago decided that it was *my* duty to procure some one to deliver an address, and in obedience to that decision I invited several prominent and able men to deliver it, and even went so far as to urge upon them the acceptance of the invitation; but the reply from each was, "Cannot do it; too much engaged; very sorry; would do it if possible; feel highly honored, and it would afford me great pleasure, but just at this time I cannot." Now here was a dilemma; so I laid the matter before some of the directors, and they at once insisted that there was an easy way open for me to escape from this dilemma, to wit: invite the president to deliver the address and *insist* on its acceptance. They considered that, inasmuch as I had made some claim to the

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honors of invention, I ought, perhaps, to be able to invent an address, especially if nine-tenths of it were stolen, as most inventions are made up in this way. In all inventions of machinery, the most simple are generally the most successful and useful, and if this is also true as to *speech-making*, then this address must be *useful*, because it will be simple. Agriculture and manufacturing comprise the entire producing class of the land. With them we have received our present prosperity and greatness. Without these our beloved country would be a howling wilderness. Give the merchant all the credit due to him, and he is entitled to much, yet he is but the farmer's assistant. He does the gathering, the transporting and exchanging of the products of the earth. But ten thousand merchants, left by themselves, could not keep one person from starving. The mission of the merchant is to dispose of the productions of the farmer, and send off in mass what the latter would have to do in detail and at twice the expense. To the merchant the country is indebted; give him all praise. But the farmer is a positive necessity. From him we receive all our nourishments and everything necessary to sustain life. From the mechanic all our conveniences, our houses, our steamboats, our ships, our railroads, and all the improvements of a country, are derived. To him the farmer is indebted for all his implements of husbandry; without him the farmer could do but little.

To show some of the advantages the agriculturist has received from the mechanic, let us call up an illustration from the past. Can the fair ladies before me believe that their grandmothers had to make all their supply of clothing for themselves and families? Their dress in summer was composed of the strong and enduring fibres of the flax, spun on such a wheel as you have seen this day at work. The mother who could not take care of her children, do the baking, washing, ironing and cooking—attend to other household duties, and spin one run of thread per day, was not considered extra smart. After the yarn had been spun, it had to be dyed and prepared for the loom; some they would dye a copperas color; some must be blue for the stripes or checks; and some must be bleached pure white, while other colors were intermingled to give due effect and beauty to their handiwork. Our grandmothers had taste, and loved as all the daughters of Eve do, a variety of colors and beauty of combination. In those days, I am assured, the young ladies attired themselves in dresses of their own spinning, weaving, coloring and

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making, and although in the making they used but six yards of cloth instead of fifteen, (as in the present day), they made the young men bow as low and smile as sweet as the ladies of our day and town with their rustling silks and swelling flounces are wont to do. And though the young miss might not have been taught to drum on the piano, she could sing as sweet, (if she had not a cold, which excuse I believe is still a relic of the olden time,) and her heart was as light as that of any of the present generation of girls. She could ride to a quilting on an ox sled, and dance merrily to the music of a single violin—and *such* dancing, a reel, double shuffle, in which there was activity, life, spirit, the genuine poetry of action with none of your sliding, languishing, die-away motions of the belle of the ball-room now. When the dance was over she could walk home, unless her beau was the fortunate owner of the horse, with a saddle, and pillion, when she would mount behind him and ride—as everybody in those days was compelled to do double the labor of the people of the present time, the horse also was trained to bear its share of the duplicate labors of the day. Afterwards she could sleep sound and sweet, and be up with the sun in the morning. Ladies, I am fearful your sex has not improved in health and happiness since those days. Though you may have extended your skirts from two feet to six, I am suspicious your sleep is no sounder, or your dreams more pleasant than your grandmothers'.

Let me take you, in imagination, to one of their houses—probably a building constructed in the midst of a forest, surrounded by the grand old trees of nature, built of logs, one story high, with a garret for the boys—and show you the work of a single day. It is spring—the time of spinning and weaving the summer linen. Rising in the morning at four, the lady of the house builds the fire, makes up her own bed, arouses and dresses the children, makes up the trundle bed, shoves it out of the way, puts on the tea-kettle, milks the cows in the pasture; husband works hard, is fond of Johnny-cake, and she must bake this morning; she mixes the meal, and places it on the board before the fire; then she sets the table, prepares the frugal meal, and when all this is done, blows the merry peal upon the tin horn, to call the men to breakfast. Now she nurses the baby—but that can be done whilst she is knitting the stockings for the winter; here come the men—she must spring up, lay the baby in the

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home-made cradle, drop the knitting, and set the victuals on the table. She jogs the cradle with her foot each time she passes, to keep the baby quiet—the self-swinging cradle being an invention of a later day. Breakfast over, the dishes put away, the children sent to school, she sprinkles the cloth on the bleaching grass; now comes the time to take the spinning wheel in hand. She brings it out upon the floor, takes the baby from the cradle, and while her foot is busy with the treadle, it serves as a motion to quiet the little one. Whilst spinning and nursing, she can sing, and right merrily, too; but it is time to prepare for dinner. Bean porridge must be prepared. Potatoes must be washed, meat put to boil, greens are to be picked in the meadow—and then down to the wheel again, until the time to call the men. The horn is blown, the victuals are taken up, when she spins away once more, until the hour for dinner. The meal is eaten with the baby on her lap—and then dinner is to be cleared away, the floor is to be mopped, for she has no carpets, and the bleaching cloth is to be watered again. Then back to the wheel, until time for tea, which over, she goes down to the pasture to milk the cows, puts the children to bed, and takes up again the ever-busy wheel, until husband has retired. She must stop now, for he does not like the noise. But no bed comes to her relief yet; the children's clothes are to be mended, stockings are to be darned, and thus she toils on until late in the night. Such was the life led by many of our grandmothers. How different now! I leave you to make the contrast, and to judge between the relative happiness, health and beauty of our good old grandmothers and their descendants.

I propose now to show briefly what the farmer has gained from the mechanic and his inventions. In those days the axe was a far different implement from what it is now, and would suffer much in comparison with one of the Simmons' or Hurd's manufacture. The helve was straight, like a pudding stick, whilst the axe was rough and ungainly, for it came from the blacksmith's forge. With it all the trees had to be felled and cut. Now we have the far more beautiful axe, made with machinery at half the cost; and in addition we have also the steam saw, which we can take with us into the woods, and with it saw down the trees and cut up the logs, without the hard labor of the olden time. Your plow was a long, awkward thing, with a wooden mould-board, which required double the power to move that the present

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cast-iron or steel-plow, made by our friends Starbuck. But we also have the steam plow, cutting up its ten acres to the old plow's one. Fifty years ago most of the grain was cut with the sickle, or the Dutchman's scythe, at the rate of one acre per day. Soon came the inventor of the cradle, and last of all the reaper, performing ten times the work per day of the old sickle. When the grain had been gathered by the slow process of our forefathers, it must be threshed, and this was done with the old fashioned flail, at the rate of ten bushels a day. Now we send it through the threshing machine at the rate of three hundred bushels per day. What a saving of time!

And contrast the manner of conducting the process of haying fifty years ago with that performed now. Then the farmer cut his acre of hay per day by the hand; the grass had to be spread to dry, gathered together again with the old hand-rake, and pitched on and off the cart by hand. What is the proceeding now? The farmer goes into the meadow before breakfast with the mower and cuts down from three to five acres, the mower spreading the grass. It is raked up by machinery, also, and pitched off with a horse pitch-fork in five minutes! Thus with his team he gets in from three to five acres per day, where formerly he could but one. In the cornfield the cultivator has taken the place of the plow; and the corn-sheller has displaced the old frying-pan handle. Potatoes, it seems, must be dug with horses. Fifty years ago the fanning mill was not known in this country. Then the grain was winnowed—held up at arm's length and winnowed upon the barn floor, when the wind was blowing freshly, or cleaned by the hand-fan, by tossing it up and letting the chaff fly off. Now, look at our present fanning mills made by Grant or Vanderheyden, which will clean the grain of all chaff, separate the oats from the wheat, leaving each in a separate pile—not only doing three or four times as much work, but doing it infinitely better. In the article of churns the farmer can take his choice from over two hundred different patterns, all warranted to bring more butter with less labor than any other churn ever invented. Riley, in his account of his shipwreck and captivity in Arabia, informs us that the natives made butter by putting the milk into bags made of rawhide, and hanging them over the backs of camels, and driving around till the butter comes. Now I have never heard of this being done in this country, and I shall not advise its trial, especially as we have machines to churn and work the

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butter. It certainly ought not to be tried, unless the bags are quite sweet and clean. In the art of making cheese we have a large number of contrivances that were unknown to our grandmothers; among them all I think the cheese-vat is the best, and saves the most labor. Then we have our choice from an hundred cheese presses—all warranted; but I would not advise any one to buy all of them, as some might not be equal to the recommendation of the vendor. I could name other useful and convenient articles in this line, not to say anything of the India-rubber milker, which is said to milk the cows without any other labor than that of changing the pail. I never saw it in use, but am of the opinion that a good hearty woman would do it much better.

In the manufacture of cloth the ladies have been much assisted by the machinist. Fifty-five years ago there was not, I believe, a carding machine in this county, and I think not in this State. I have often heard my father say that he started the first carding machine in this State, at East Nassau, in this county. It was some years before all the farmers could be induced to bring their wool to be carded by machines; they thought the wool was carded too much and the cloth not so strong. The women used to card the wool by hand, by putting a small lock between the cards and drawing them backwards and forwards until properly carded; then making the roll on the back of the card. It was a slow and tedious process, but the carding machine saves all this labor now. After the wool was carded it was spun on a wheel similar to the one you have seen at work here—the woman pulling the thread out with one hand while she turned the wheel with the other, walking back and forth with each thread, and thus traveling more miles than the length of thread she spun. But the spinning jenny was invented and came along, which spun one hundred threads to the woman's one. Soon they began to talk about it, a little like the town pauper I once heard of in this county, who was very fond of tobacco, and the honest poormaster of that day set off to him a piece of ground and told him that he must raise his own tobacco; but to this he objected, saying that it was cheaper to buy it. So said the women (instigated, perhaps, by their daughters, who were not very fond of spinning,) and so woman's spinning days were over, and the old music of the wheel was heard no more in the house. The wheel was carried out and the piano carried in, the music of which was, perhaps, sweeter,

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but it brought less invigoration and health to the household. Now cotton factories sprung up; the little wheel was soon discarded; the beautiful checked linen dresses were laid aside for the more showy silks and muslins, which, if not so strong, had a much greater width. That useful article, the sewing machine, was not then invented. Sewing was done by hand, taking say thirty stitches per minute. Now the sewing machine showers down four hundred stitches in the same time, doing thirteen or fourteen times as much work. But I have always been better pleased to gaze upon the old fashioned sewer than the new fashioned one, though passionately fond of machinery.

But our grandmothers had not only to do all the *sewing*, but the *knitting* also, and although their eyesight would in time fail them, and their fingers grow too stiff for sewing, yet the eye never grew too dim for the knitting work nor the fingers too weary for the needles, until an unseen finger with a mellow touch closed the labor. Where is the man who cannot remember the nice warm socks knit by his grandmother when he was a boy; and what rollicking times the old knitting needles used to have by the old fireside at home, and at the evening gatherings. That work was everywhere, except perhaps at church; but it attended the singing schools and spelling schools and the balls, and with no other inconvenience than dropping a stitch when a word was missed, or delaying the partner for the dance until the seam-needle was reached. But the click and the glimmer of the needles are gone, and we now have knitting machines taking one hundred stitches to the old needle's one.

Fifty years ago, if a man intended to go to Utica, it took him about half the summer to make the arrangements, and when ready to leave home, his neighbors came in to bid him God-speed and adieu. He then mounted a heavy lumber wagon, and if he was in good circumstances, his seat was a sort of double concern, with a straight back and splint bottom. Within the wagon you would have found a covered pail, containing crackers, pork and beans, a box or bag of nut cakes, a loaf of bread and cup of butter, and in the rear end a bag of oats for the horses. He carried no hay, because every traveler felt in that day that he must do a little something for the landlords on the route; so when he stopped at the tavern, (there were no hotels in those days,) he put his horses in the stable and fed them hay at a cost of twenty-five cents. He took a bed at a cost of twelve cents, a

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glass of cider with his supper, at a cost of three cents more, making a bill of forty cents. More than this would have been considered extravagant. He drove on to the next tavern for breakfast, put his horses under the shed and fed them from the oats in the wagon. Taking his pail on his arm, he went in to eat his breakfast, and inasmuch as it would look small to use the landlord's shed and bar-room without leaving any money, he calls for a glass of cider—must be liberal—pays his three cents, and all parties are satisfied. Now if the roads were good and his team smart, he arrived in Utica on the third day, and if he succeeded in getting home the same week, it was a feat to be long remembered and deserving of notice in the Budget, then a small paper printed and published in Troy, and considered a wonderful undertaking.

How is it now? A merchant has urgent business in Utica; he goes to the depot, steps into a car at 12 o'clock, and seats himself in an easy cushioned seat, and soon the great black horse breathing fire and smoke, is fastened to the car, the driver shakes the rein, and the panting horse with a snort moves off; soon his breathing quickens, and with his load at lightning speed, he goes snorting and neighing over the valleys and rivers, and runs at a pace of 35 or 40 miles per hour, and at three o'clock he steps out at Utica, does his business and comes home to tea. Supposing the farmer then desired to ascertain the price of corn in Utica, he would write to his agent there, and if he was prompt in replying, he would receive his answer in about six days after mailing his letter. Now he steps into the telegraph office, his message is whispered to the lightning which bears it away, and his answer comes back before the farmer can make the change of the required forty cents at the counter. At that time a ton of goods carried to or from Utica, cost $20; now only $1 by canal. But this is an age of iron, steam and lightning, and to even hint at half the vast improvements and changes of the last fifty years would take many hours; but the farmer, mechanic and merchant, hand in hand in their noble efforts, may make the coming fifty years more wondrous than the last.

Do you ask, what of the literary classes? I would say, if I had my way, I would instruct the teacher so to teach, and the minister so to pray, that the people might so live that we would need but few soldiers, lawyers or doctors.

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ROCKLAND.

The annual fair of the Rockland County Agricultural Society was held at New City, on the 2d and 3d of October, 1861. The weather was propitious, and the attendance large for the "little triangle." It is supposed that five thousand persons were present on the second day. The receipts amounted to something over seven hundred dollars. Five hundred dollars were paid out for premiums. The exhibition of horses and cattle was very good. Some of the animals had taken premiums the week previous at the State Fair. The exhibitions of fruits and vegetables in which this county excels, was said to be (by those who had attended other fairs throughout the State) unsurpassed. The best and most profitable part of the fair was the annual address, delivered by the Hon. John Stanton Gould, of Hudson. The address was practical, patriotic and agricultural. It appealed directly to every farmer present, and proved to him from the statistics of each grain crop in his own county what he could do, if he would, compared with what had been done, showing the difference between the minimum and maximum yield of each crop. It was just such an address as was acceptable to every farmer not only, but every one who was not a farmer.

Yours, sincerely,

JOHN W. FERDON,

Pres't Rockland County Ag. Society.

ST. LAWRENCE.

B. P. JOHNSON, Esq.,

Secretary of New York State Agricultural Society:

Dear Sir—Below please find a hasty report of the proceedings of the St. Lawrence County Agricultural Society for the past year.

The tenth annual fair of the society commenced upon the 25th and closed upon the 28th of September, 1861.

The exhibition was extremely creditable and satisfactory, being much enlarged and diversified by entries from exhibitors at the State Fair, which had just closed at Watertown, and by the usual large contributions from Jefferson, Franklin, and Clinton counties.

We now consider the experiment of sustaining an Agricultural Society in this county a success and a certainty, feeling well

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assured that at no future time can so many discouraging and unfavorable circumstances combine to prevent attendance and exhibitions, as were crowded into the three days appointed for the holding of our late fair. The extreme hardness of the times, and tightness of the money market; the excitement of the war; the holding of the State Fair in an adjoining county the week previous; the Fast recommended by President Lincoln, and which every loyal citizen was anxious should be sacredly observed, came upon the second and most important day; a camp-meeting which was in session in the town during the week engaged the attention of many of the most interested and active members of the society; lastly, a drenching rain set in on the morning of the third day, and completely disarranged and essentially closed the proceedings of the fair.

Another omen of success and permanency, and one upon which we rely, is the fact that at the late annual meeting, T. L. Harison, Esq., whom you know as a successful breeder of thoroughbred stock, was elected secretary, and will bring to the discharge of the duties of the office, the necessary qualifications and requirements in a much greater degree than they are possessed by your humble subscriber.

The society grounds having been twice enlarged by the purchase of additional lands, are now both commodious and beautiful. The show ground consists of thirty-five acres, enclosed with a high board fence, with ten acres of pasture adjoining, in which exhibitors can graze their stock free of charge. Along the upper side is a permanent building 400 feet long with tight sides and shingled roof and divided into stalls for cattle. By means of pipes, a beautiful cold spring (the title to which has been secured by the society) furnishes an abundance of "God's own beverage" for man and beast. An oval driveway, half a mile long, nicely graded and leveled, has been built at an expense of a thousand dollars. The seats are facing the driveway and upon the lower side, and so situated that the entire exhibition is before them. The show of cattle was large and of rare merit, embracing as it did T. L. Harison's herd of short horns, among which was the bull that won the first premium at the State Fair, and there carried off the sweepstake; S. D. Hungerford's herd of Ayrshires, including the celebrated "Bessie," and George Short's Devon bull, which was also the winner of the first premium at Watertown.

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Native dairy cows were upon the ground in large numbers, and a few pairs of oxen and steers were shown.

Of Alderneys, none are owned in the county and none were shown.

One Hereford only was present, and he of little merit and doubtful pedigree.

The display of the various classes of horses, was not in number or quality, equal to some former exhibitions, although it embraced a few from the central part of the State, and from Vermont and Canada.

The show of fine and long wool sheep, was creditable in quantity and quality. But one flock of middle wool sheep is owned in the county, and that by a gentleman who does not care to exhibit. The piggeries were well filled with large, small, and mixed breeds. In this class, the Jefferson county breeders were large exhibitors, and in large breeds beat our farmers badly, carrying off all the premiums. The mechanical department was only moderately represented.

The products of the dairy were, as usual with us, the leading attraction. The large hall was filled with boxes of cheese and packages of butter piled high one upon another, rendering examination laborious and difficult. In quality, it was admitted to be excellent, although some judges thought the butter was not quite so fine in flavor as last year, owing to the effect of continuous rains upon the grass.

The show of fruit was fine, owing however mainly to a splendid exhibition of apples, by John W. Bailey, and of pears, by John H. Sanborn, of Plattsburgh.

Floral Hall never was more beautifully trimmed and decorated. It was an ornament to the fair, and a credit to those who designed and arranged it.

The annual address was delivered by Hon. Josiah Quincy, Jr., and was an able and patriotic production, but being political and not agricultural, the object for which it was obtained and paid for, was lost to the society. The receipts, though much reduced by circumstances, were sufficient to pay the premiums and expenses.

Respectfully yours, &c.,

L. E. B. WINSLOW,

late Secretary.

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SARATOGA.

To the Executive Committee of the N. Y. State Ag. Society:

In compliance with the 4th section of the act passed May 5th, 1841, entitled "An act to promote agriculture," the President of the Saratoga county agricultural society respectfully reports:

That he has received no reports or returns from applicants for the society's premiums, as required under the 3d section of said act, and consequently he has none to transmit to the State Society. The object of that provision was doubtless to obtain useful information in regard to the preparation of the soil for raising crops upon which these county societies are awarding their premiums, and in feeding and fattening animals worthy of being thus rewarded. Our local society has acted upon the theory that unless some *useful* information was to be derived from these returns—unless some extraordinary discovery was made in cultivating the soil and in growing the crop, or in feeding or fattening the animal entitled to our premiums, it was hardly necessary to encumber our records with such useless returns. On looking into the record or Transactions of the State Society, as published for a few years past, we do not discover that other county societies have been any more vigilant in complying with this provision of the law than we have, and we make the acknowledgment of the omission on our part for the purpose of inviting the attention of the State Society to this subject, that the omission may be supplied for the future, if it is supposed that the public will be benefitted by such returns.

The year past has been one of general fertility throughout the land, and if the commercial and political world had not been convulsed by the rebellion on the part of a few southern States, eighteen hundred and sixty-one would have been remembered among the most prosperous, for every branch of agriculture, that our country has ever beheld.

Like many other agricultural societies, our's has struggled against the adverse influences arising from the distracted, warlike condition by which all classes of the people are now unfortunately surrounded; and if this state of things is to continue through the coming year, it is at least problematical whether agricultural associations can survive the blows aimed at every branch of human industry. The call for half a million of volunteers has taken from the field of agricultural labor more than its

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just proportion of soldiers, who make up the vast army now in the field, and if this war is to be continued for any length of time, it must, of necessity, leave behind it a dearth of laborers in the agricultural districts, from whence the largest portion of the army is drawn. Whatever may be its transitory effect upon the prices of agricultural products, a state of war has never been advantageous to a good state of agriculture; and, like pestilence and famine, war, however it may be justified, has always been regarded, by civilized communities, as one of the scourges of mankind. Agriculture flourishes the most when the world is at peace. The present unfortunate and unusual state of things is referred to as an apology for not sustaining our agricultural organization as well as we might and doubtless would if the trade and business of the country were not disturbed and perhaps destroyed by the pending war.

After entertaining and considering a proposition not to hold any agricultural fair during the past year, our society, or its board of managers, concluded to try the experiment, for so it was regarded from the moment the call to arms was sounded in our midst. With stout hearts and willing hands, the farmers and friends of this society determined to face the storm, and it was resolved to hold our annual fair at Saratoga Springs, on Tuesday, Wednesday, Thursday and Friday, September 3d, 4th, 5th and 6th, and to offer as liberal a premium list as if nothing unusual had occurred. Accordingly, at the first or May meeting of the executive committee of this year, a premium list, embracing agriculture proper, horses, cattle, sheep, swine, poultry, agricultural implements, mechanical productions, butter and cheese, fruits, vegetables, flowers, household productions, painting, drawing, embroidery, needle-work, and miscellaneous articles, not included under either of the foregoing heads, was adopted, and amounting, in the aggregate, to $1,600. At this meeting, too, a liberal premium list was offered on horses from other counties, to compete, however, among themselves. A general superintendent of the exhibition was then appointed with directions to report the number and names of the necessary assistants, gate-keepers, police and watchmen for the fair. This tended greatly to facilitate the arrangements for the exhibition.

At the next meeting of our Board (Aug. 3, 1861,) the price of tickets of admission to the show grounds was fixed as follows:

Single tickets, each thirteen cents; carriage tickets, without

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passengers, twenty-five cents; annual membership tickets one dollar—the latter to have two carriage tickets. Complimentary tickets to be issued only by the President.

This system of admission was pretty generally satisfactory, and worked exceedingly well throughout the exhibition.

THE TWENTY-FIRST ANNUAL FAIR.

Notwithstanding the doubts which had been entertained about the exhibition, it was a decided success, and would have been so regarded in the best and most peaceful of times. We were fortunate in having fine weather, and an over-ruling Providence seemed to smile upon us, if the political elements were adverse.

The first day of the fair, as usual, was employed in entering and arranging everything intended for exhibition, and it was soon apparent that there would be no falling off from previous shows, in every department where competition had been invited. At the closing of the entries, at 11 A. M. of the second day, they were as follows:

	Entries.
Farm horses	7
Miscellaneous articles	72
Mechanical productions	47
Agricultural implements	31
Agriculture proper	21
Horses	147
Cattle	87
Sheep	35
Swine	70
Butter and cheese	25
Fruit	23
Vegetables	89
Flowers	89
Household productions	170
Painting, drawing, needlework, &c	72
Total entries	977

The total number of annual members, who became such during the fair, was 557.

The second day was devoted by the judges to the inspection and examination of the animals and articles on exhibition, and

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owing to the pressure of human beings in all parts of the grounds, the duty of the judges was not fully performed until noon of the following day.

At 2 P. M. of the third day, the society was called to order by the President, when the Throne of Divine Grace was addressed by the Rev. Mr. Woodbridge, of the Presbyterian Church, in a fervent prayer for the peace and prosperity of our beloved country, and the success and well-being of our society. Hon. William A. Sackett, of Seneca Falls, was then introduced to the society, and the vast assemblage who had come up from all directions to listen to his eloquent, and interesting, and instructive address. For nearly an hour the orator held the whole audience in almost breathless silence, with an occasional outburst of applause, which the President in vain endeavored to repress. At the conclusion of the address, the following resolution was offered by Isaac Frink, Esq., of Milton, and unanimously adopted:

Resolved, That the thanks of this society be unanimously tendered to the Hon. W. A. Sackett, for the able, eloquent and instructive address delivered on this occasion, and that a copy thereof be requested for publication with the proceedings of this society, in pamphlet form.

The benediction was then pronounced by Dr. Luther F. Beecher, who was immediately thereafter called out for a speech, which he gave in his usual patriotic and impressive style.

We ought not to omit an incident which occurred or became public during these proceedings. It was well known that the society owned no national flag of any description, while the spectators were anxious to find out the name of the patriotic donor who had hoisted the "Stars and Stripes," with the name of the Society, and other appropriate devices, indicating that it was presented, and was there gracefully unfurled to the breeze, over Agricultural and Mechanics' Hall. To relieve this anxiety, the following resolution, offered by E. J. Huling, was unanimously adopted:

Resolved, That the thanks of this society be unanimously tendered to Mrs. Isaac Clement, of Mechanicsville, for the beautiful flag containing the Stars and Stripes, which floats so gracefully over Agricultural Hall, made and presented by her to this society. While patriotism dwells in the hearts of the freemen of Saratoga, this beloved emblem of our national Union will

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never be trailed in the dust, nor surrendered to the foes of American liberty, foreign or domestic.

The interest in the exhibition was kept up until late in the fourth and last day, and it was not until the premiums were mostly paid, that the crowd began to disperse. Everything considered, the twenty-first exhibition, fair and cattle show of this society was the best and most successful ever held.

The total receipts during the fair were	$1,850 51
To which may be added the State appropriation for 1861	121 00
Making	$1,971 51
The expenditures were, for incidentals	$953 54
Cash premiums awarded	1,008 00
	$1,961 54

All of which is respectfully submitted,

J. A. COREY, *Secretary.*

ANNUAL ADDRESS, DELIVERED BEFORE THE SARATOGA COUNTY AGRICULTURAL SOCIETY, SEPT. 5, 1861, BY HON. WM. A. SACKETT.

Members of the Saratoga County Agricultural Society:

Your committee have honored me with an invitation to deliver your annual address. As I am not a farmer, you will not expect me to enter into the details of agriculture. I am not acquainted with the varied branches of that department of industry, and am incompetent to enlighten you upon it. But your invitation has awakened a train of reflection immediately connected with it, important not only to agriculture itself, but to the general interest of agricultural society.

Why did your society look to another profession for an address on an anniversary like this? Was it because you supposed one who had spent his life in the consideration of other things, was better qualified to teach the art and mystery of cultivation than one of you? or did it arise from causes that lie far deeper in the foundations of our society—that more widely control the habits, customs, practices and opinions of the great mass of our people? Why is it that farmers lean upon others who are not farmers, to discuss the subject of farming? It is my purpose to examine this question.

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Agriculture is among the most ancient, honorable and universal pursuits of mankind. It is a necessity of our race, and has engaged the attention of a majority of the human family from the earliest ages. It must be some influence of no ordinary character, that leaves, in so large a degree, the discussion of questions that belong to an interest so vast as theirs, to those who, by education and habits of thought, are neither familiar with its details, nor acquainted, by experience, with its practical operations. There must be something wrong in the frame-work of society—some undermining influence of the public good, that leaves it for lawyers, doctors, editors and politicians to enlighten the world upon the most advantageous systems of draining—the best application of fertilizing agents—the new uses to which lands can be successfully applied, and the variety of grains, fruits and grasses that should be adopted in different climates and soils.

You have been accustomed to believe that the pursuits of village and city life are more inviting, and possessed of more advantages than the farming interest. So influential has this belief become, that it is seen, not only in our laws and public policy, but it pervades our homes and firesides, controlling alike the feelings and hopes of aspiring fathers, ambitious mothers, and the imagination of childhood and youth. It is the power of this pernicious opinion that is doing more to retard the progress of agriculture, than anything else that weighs upon it. The evidence of this is apparent. Let me illustrate by an example: A farmer gives to his son a so-called liberal education. This is not done with the view or expectation that he will give to agriculture the benefit of his attainments. No. The very acquirements he has made have set him apart for some other calling. Their whole aim has been to take him away from that pursuit in which the world is most deeply interested. There is no natural reason for this. There is no wider field for investigation—no study to which the human mind can be devoted, that demands the exercise of higher powers, than the study of the earth and its resources. And still, such is the force of opinion, that the illustration I have given is seen from year to year, and from age to age, and is of almost universal application.

Take another illustration: We have numerous institutions for instruction in the higher branches of learning. They have been endowed by private munificence and public treasure. They are all abundantly supplied with teachers of Languages, Belles Let-

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tres, Astronomy and History, but scarcely a chair is occupied for the instruction in the nature of soils, or the character or requirements of grains, fruits and vegetables. So great is the neglect of these branches of learning that even ordinary text-books upon the subject cannot be found in any of our public libraries. Lawyers' offices groan under tomes of legal learning; doctors' shelves are radiant with the written experience of the healing art. The sacred desk can tell us, in different languages and tongues, the doctrines of the fathers, and from authentic record light the lamp of creeds and symbols from the distant ages. But where is the history of corn, wheat, potatoes, soils, roots and fruits—of their varied characteristics and modes of cultivation? As astonishing as the fact may appear, I risk little in saying that no work can be found containing any general system of agriculture, the analysis of soils or productions; though every other branch of learning has its authors and its books, the history of your department of industry is comparatively unwritten.

So far have we drifted away, in this respect, from what should command our most profound consideration, that there is, in no limited degree, a prejudice against the use of scientific rules for farming purposes. The belief is quite common that high attainments are not a necessary requisite for the application of labor to the soil.

Another illustration may be drawn from our common schools. No thought has yet been given in these primary departments to the fruits of the earth, or to their mode of production. There are in this country more than four millions of children taught, annually, in these schools. Is it not strange indeed, that what most deeply concerns our whole population should be unknown to their lessons? There is no place where reform could be more advantageously applied. A vast fund of information would be diffused through every neighborhood; thought would be quickened and mind directed, in a thousand ways, to the various branches of husbandry, that, in no other way, could so easily be brought to their consideration.

Another of the causes influential in producing the result we are considering, arises from our love of fashion and of show. We have all believed, and you farmers as well as others, that the controlling power of fashion peculiarly belongs to cities and towns, and that to indulge our natural desire, in this respect, we must take pattern from them.

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In every age, and in every country, place and power have been the shining mark of hope and promise, and no people turn a more wishful eye toward official station than ourselves. Governed by the same pernicious opinions that control in other departments, the exercise of the high political powers of the country is almost exclusively in the hands of those engaged in other pursuits. Our Governors, Senators, Representatives and high political functionaries are rarely taken from your ranks. It will be found, by our census returns, that there are in the United States about four millions engaged in farming pursuits, and not to exceed thirty-five thousand lawyers. From the ranks of that thirty-five thousand, more men are chosen to shape and mould the laws and institutions for the government of this vast empire, than from the four million cultivators of the soil. Why is this? No philosophical reason can be assigned for it. There is nothing in the nature of the professions that better qualifies a citizen for the discharge of high political trust, than in agriculture. It matters little to what we apply our powers. With the same advantages, he that reduces the forests to fertile fields, subjects the barren wastes to human agencies, and quickens their slumbering elements into life, is best calculated for the public service. He must always be the more direct representative of those interests upon which the prosperity of the country most largely depends. He is not likely to be influenced by passion, or personal interest; he belongs to no village clique or city cabal; he has no corner-lot schemes, or clap-trap ends to answer, but looks out upon the broad field of nationality as a great whole, to be maintained with equal justice in all its parts. Notwithstanding these obvious advantages, the fact remains; and our institutions are fast sweeping onward toward the supremacy of other classes. The most ambitious of your sons, and not unfrequently your daughters, guided by the popular mind, are fast drifting towards the centers of influence and power, thus depriving agriculture of its brightest ornaments, and adding another reason for the question I am presenting. It is true, indeed, that the homes and firesides scattered along the sunny slopes and fertile fields and beside the running waters of country life, are the nurseries of the distinguished of every calling; but farming cannot, from age to age, be thus shorn, and hope to progress with the same rapidity.

There is another prevailing error. It is but too generally

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supposed that the injunction, "By the sweat of thy brow shalt thou eat thy bread," in its practical operation, applies to the tillers of the soil, and that the professions and those engaged in other leading branches do not work. However erroneous, this idea is quite universal, and has had its full share in building up the power of those pursuits. It is due to truth to say, that there is no belief more foolish or less founded in fact. Learned lawyers, faithful physicians and industrious merchants generally, labor more hours than yourselves; and while your labor is wholesome and regular, theirs is irregular—full of extremes, and spread through many hours of your repose.

High considerations of political economy are involved in this subject. Without representation, without a voice in the public councils, you judge mankind quite too charitably if you suppose that our laws will be impartial and equal, securing to every class the same advantages. With political influence, the public treasury, and State and national power, substantially in other hands, it would be strange, indeed, if they were wielded to your advantage. Give to the servant the place of his master, and he will exercise his authority. Place your institutions in the hands of others, and you cannot expect that your peculiar interest will be guarded and secured to the same extent, and with the same enlightened consideration as though their administration were shared by yourselves. I will give an illustration of the partiality of legislation resulting from this cause. Taxation is intended to be equal, but it is not so in fact, and you are the sufferers. One of you owns a hundred acres of land; it is worth $5,000; there is a mortgage upon it of $3,000; the holder of the mortgage is rightfully taxed for its amount. As our laws now are, the owner of the land is also taxed for the full value of his farm. How long, think you, this injustice would continue if you held the reins of power? This is but one of a thousand instances of the same character, but it is enough for illustration.

As a consequence of the prevailing sentiment, too many seek their fortunes in new and untried experiments, in the whirl and uncertain chances of commercial adventure. Too many seek to live by their wits without regular employment. Too many are engaged as the mere agents of exchange between the producer and the consumer. To this cause may be attributed many of the panics and financial embarrassments that visit such fearful consequences upon all branches of industry. Give to agriculture

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the controlling power its great importance demands; balance the machinery of society; let a great and enlightened influence flow out from among you that shall be seen and felt in the business relations of the country, and these revulsions will be diminished. Let the steady purposes that guide your lives be looked to as an example, and the over-weening desire of the more fluctuating will be over-awed and controlled.

Another result consequent of existing opinions is the undue increase of the population of our cities and towns, and the too large accumulation of wealth, in large masses, under their control. The value of their real and personal estate has augmented beyond all comparison with former times, while yours makes but slow progress. They are arrogating to themselves political power, property and the omnipotence of public opinion, while you, in place of leading in the great drama of current events, are but followers in our onward march. And, to-day, you are illustrating this fearful truth, by looking to others and not yourselves for the discussion of your own affairs. Here are some of the fruits of the delusions that surround us.

We are not without example of the consequences that inevitably follow from national errors like these. The Roman empire rose to its greatness in the days of its agriculture. It was rent asunder when its power was carried within the walls of Rome. France has reduced her rural population to a dependent peasantry, and her institutions have been three times overturned in a single generation. Mexico has been governed by a priesthood, and the irresponsible power of her great commercial center, and her existence is nearly blotted from the map of nations; while England for generations has been giving dignity, education, power and influence to her agriculture, and not a hostile foot has stood upon her shores, or a rebel hand been raised against her power. Germany, cold phlegmatic Germany, has given her heart to the soil, and her numerous little principalities and powers have remained for ages comparatively undisturbed.

The fatal consequences of our errors have at last been visited upon ourselves. The great and glorious government of our fathers has been bathed in blood by fratricidal hands. The question of its future career among the nations of the earth—of the blessings it secures and the liberties it maintains, now tremble in the balance. The dread summons of war calls this people to arms—to arms in defence of all that is sacred, of all that secures to man

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his best estate—in defence of liberty, of religion, of morality, of the constitution, of individual rights, and of government itself.

It is not my purpose, on this occasion, to inquire into the immediate causes of this war. It is enough for a patriotic people to know that a war exists, periling the very existence of their institutions. In support of such a cause, every patriot heart quickens with emotion, and every stalwart arm is nerved for the conflict. It is a people's war for a people's government. It was for our fathers to achieve the liberties for which they fought, and it is for us now, in the stern hour of their greatest trial, to preserve them unimpaired for ourselves and for future ages. A rebel flag pollutes our soil. The pure faith under which our fathers fought, that "man has an inalienable right to life, liberty, and the pursuit of happiness," is spurned with contempt. The banner which has so long waved in triumph, and ever been borne upward and onward by a free people, has been trampled in the dust. Our revolution was a war in support of human rights. We now accept the gage of battle in defence of the same great principles. And what more fitting place than Saratoga, that enshrined the ashes of the illustrious dead of other days, to kneel around our country's altar, and swear anew fidelity to that liberty, and that country that, by the blood of the brave, was baptized into life upon her sacred soil. To swear, by the memories of the past, by the glorious heritage it secured, by our duties to God and ourselves, to maintain this government till no traitor's foot desecrates the land. "All just powers of government are derived from the consent of the governed"—the natural rights of man are equal; and upon these doctrines our government was established. England contended for arbitrary power—the power of force, the dominion of the few, and the submission of the many. Rebel hands have taken up arms against the union of these States in support of the same principles England contended for then. They, too, would crush out liberty and establish the power of force, secure the dominion of the few and compel the submission of the many.

There is nothing in which the agriculturists of this county are more deeply interested than the all-absorbing question of this day—the dissolution of the Union. In it are involved not only their individual liberty and happiness, but the value of their farms—of their products, and the security of their families and posterity. Without a country no man's rights are safe. It was

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the original union among the colonists that enabled them to achieve the liberties they secured; and it has been the constitutional union of the States that has enabled us to preserve the liberties we have. No man can too highly appreciate the importance of this Union. But imagine the consequences of dissolution, of separate powers in the heart of what is now a common country, the inevitable weakness, rivalry, conflicting interest, separation of those natural associations enjoyed by all to such infinite advantage now, and the mind sickens at the contemplation. Little principalities, petty republics—here freedom and there despotism—here a sovreignty blotted out, and there another built up, to be destroyed in its turn, now a war of aggression, then a peace of submission, confiscations, crime and death. A power in the south, another in the west, another in the east, all struggling with each other. Who cannot see, in such a state of things, that the equal rights, the unexampled prosperity we now enjoy, would be lost—lost in the wars of ambition, in the avarice of States, and in the final triumph of some master spirit, whose genius would re-establish upon this continent the same ruling power of force against which our fathers fought and conquered, and from which our common union has preserved us. The embittered soul that would, by word or deed, weaken the bonds of this Union, or that could acquiesce in the consummation of its fall, has reached the summit of its guilt, is an enemy of mankind. Come prosperity or adversity; come peace or come war; come victory or defeat, this Union must be preserved.

For this digression I feel justified, in consideration of the immeasurable interest each one of us has in the issue involved in this contest, and because I believe, too, that one of the causes of the difficulties now endangering the institutions under which we live, is that fatally erroneous popular opinion which we are now considering. This is not a rebellion that originated with the farming interest. It sprang from the hot-bed influence of the dissatisfied, reckless spirits of other classes, whose council chambers are in the galleries, streets and lanes of cities and towns, where the boiling heat of passion, and the uncontrolled influence of malice and hate rule the hour with despotic sway. Had our halls of legislation and our national councils been more largely under the control of a great and enlightened agricultural population; if we had, in the past, rested upon the farming interest as our anchor of safety, and the toil and sweat of honest industry

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had in every part of the country been respected and free, the fearful evils which now encompass us would have been avoided. Agriculture inclines to stability, and institutions based upon its influence are not easily to be shaken.

This nation must stop in its mad career of prostituting its political power to the designing ambition of demagogues and small politicians, who ride the whirlwind of popular clamor, for the hour, regardless of the fundamental principles upon which alone our government must rest for its security. The sources of power must be changed. The liberties of more than 30,000,000 of people must not depend upon the ever-changing and revolutionary opinions of our corner-grocery oracles and bar-room orators. The time has come when you, farmers, must take your stand. Our country is to be preserved by the patriotism, the virtues, the firmness and persevering efforts of the men who are not the camp-followers of those who compass sea and land to make one proselyte in support of personal ambition.

Let us now look to the remedy for these evils. I know how hard it is to change popular ideas; how difficult it is to rouse the public mind to the consideration of moral, social, or political errors; how nearly impossible it will be, to make yourselves, your sons and your daughters believe that your calling in life is the most inviting condition of our race; how hard it will be to change the seats of ambition, of hope, and of promise, from the professions, commerce and trade, to the farm and the home of the farmer. To sing praises to your golden harvests and waving corn, your green pastures, and shady groves; to contrast your mountain sides and spreading plains, with the uncertainties, debts and bankruptcies, that so often underlie the gilded show of our cities and towns—will not do it. No drapery of imagination, no fulsome adulations will change the current of the public mind. We must begin at the beginning, and lay the foundations deep and strong in all that makes and moulds society, in all that forms, refines and elevates private life and character. And first, you, farmers, must demand, while you pay so liberally for the support of our schools and higher institutions of learning, that agriculture shall have its full share of instruction. That while the stars and the planetary system may be studied by aid drawn from the granaries of the husbandman, the laws of production shall not be neglected; that, while other sciences may be aught, the science of agriculture shall be made a part of universal edu-

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cation; that the classics shall not be taught with your money while no instruction is allowed upon the best systems of raising the crops by which that money is produced. How strongly the state of our system of education illustrates the subject of contemplation. The merchant is fully instructed in all the forms of book-keeping, weights and measures, and rules of calculations necessary for his business; commerce is taught in the doctrine of exchange, the rules of navigation, and the necessary elements of its industry. The professions have their seats of learning; the mechanic arts are governed by exact rules; the natural sciences are taught, in their application to almost every other department of labor except your own; but for the cultivation of the farm there is no book.

The annual value of the crops of the United States is more than 1,000,000,000 of dollars. This is an interest too large to be thus neglected. The immense advantage of reform in our system of education is so apparent that comment is unnecessary. Study is the great motive power of useful progress. One physician may become learned in particular branches of his art from his own personal observation. Give that knowledge to the world in the form of a well digested treatise, and it is put in practice by thousands. One farmer, from a long series of experiments, may discover the best mode of cultivating particular soils, but this knowledge is but limited so long as it is possessed by him alone or only communicated to the few with whom he associates. Place it in your libraries—make it a part of your household reading, and it will shed its light in a thousand households and guide the labor of a thousand fields.

The effect of a change upon this subject will be to change the public taste—to inaugurate in the public mind habits of study and thought in every department of husbandry. And who can tell the influence of such a change? Who knows how many mysteries lying yet embosomed in the soil, waiting to be applied to the support of man, would be developed by it?

The wheat crop of the United States amounts to more than 150,000,000 bushels annually, yielding not to exceed 11 bushels per acre. Give to every farmer an opportunity to examine the experience of this and other counties upon this staple, and is it not easy to see that this yield would be likely to be largely increased? There are in the United States about nineteen millions of neat cattle. The best mode of feeding stock has to

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some extent been considered. It is claimed that soiling has great economical advantages. In a learned essay upon the subject, delivered by Josiah Quincy, at the request of the Massachusetts Agricultural Society, facts are stated showing that only one-third the amount of land is required by this system, that is for pasturage, and that the expense may be fully compensated by other advantages it has over the ordinary mode. If this be true, more than twenty million of acres in this country alone, now used for pasturage, may be saved for other purposes. As startling and as important as this question may be, how many of you have ever had an opportunity to study it from any well authenticated history of its practical workings?

The corn crop of the United States is one of the most important crops we raise, amounting to seven hundred million of bushels annually. Various soils and various climates are adapted to its culture. But as important as it is, you will hunt, in vain, for any work enabling you to investigate, in any considerable degree, its peculiar and varied characteristics, what have been the changes and improvements in the manner of its production, or its best system of cultivation in different localities, elements and soils.

Revolutionize the public mind upon these subjects, and you will produce more effect upon agriculture than by all the individual effort you can make. Your societies are useful auxiliaries to the farming interests, but a change in our public affairs, a change of popular opinion, that shall give to agriculture the influence its importance demands; that shall give to it its full weight in our public councils; that shall secure to it its natural preponderating power in our halls of legislation; that shall insure for it a system of agricultural education, and you will do more for the cause in which you are engaged than you can by shows and exhibitions; you will do more towards improving the cultivation of your lands, and making your homes the inviting abodes of refinement and taste. These can be done by the theories of those who now experiment upon the improvement of your soil. Surround your homes with influences like these, and the fancies that haunt the imagination of your children, and build up in their minds airy castles of the pomps and pleasures that are supposed to cluster around the lives of those engaged in professions, commerce and trade, will vanish from their sight. They will forget to remember there is anything more inviting in habita-

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tions amid the noise and confusion of dusty streets, elbowed by jealous neighbors, and fanned by the noxious vapors of unwholesome accumulations, than in the mansions of refined and cultivated country life, surrounded by all that is beautiful in nature, and devoted to all calculated to give dignity to man.

The earth is the great laboratory, prepared by the hand of God himself, for the exercise of man's profoundest skill and the accomplishment of his noblest ends. To realize this great truth, and give to it its practical weight and influence upon our country and upon ourselves, is of more consequence to our future history and of more vital interest to agriculture itself, than any other subject we can now consider. Change the current of thought into this direction, and the cultivation of the earth will receive an impulse never before felt. Your industry will be seconded by the power of science and the proudest intellects of men. The world will no longer lack a history of your toils. Every branch of your noble industry will have its writer, and its experience will be spread upon a thousand pages, the lights and guides for agricultural progress. New crops and new resources will follow in its train—new beauties will be seen in your rural homes, new securities will be given for peace and prosperity, and a final stop will be put to the overshadowing influences that now weaken the farming interest, and endanger the safety of government itself.

Great interests are more subject to political influence and popular opinion than is generally supposed; commerce has been the favored child of our national care, and it has risen, as by enchantment, until we have more foreign and domestic tonnage than any nation upon earth. An enlightened spirit of internal improvement has received the fostering care of legislation everywhere, and we have to-day more miles of navigable canals than any other nation, and nearly as many miles of railroad as all the rest of the world put together. The farmer has been left to his own unaided energies, and while we have more than ten times as many acres of fertile wheat land as England, there is nearly as much wheat raised there as here. While it is doubtful whether our yield is as much per acre as it was forty years ago, the yield there has doubled in that time. *There*, agriculture has been a favored interest. *Here*, advantages have been secured to other classes. Change popular influences, and our crops will be multiplied and their yield enlarged. Pride of country, pride of home, and pride of calling will increase. Our lands and waters, woods and fields

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will be the envy of the rich and the ambition of the great; shops and trade will no longer decimate the land of its sons and daughters. A thousand objects of affection will bind you to the spot, where ancestry and kindred have left an honored name, cherished as the noblest heritage, The home of the father will be beautified by the son, and children's children will gather beneath the spreading branches of ancestral trees, and repeat the story of the race that there has lived from age to age.

Secure to yourselves the advantages I have stated, and the ever-shifting scenes of cities, where stocks, property and population are alike on 'change, will pass at their true worth. Then will the tide of agricultural progress rise to great achievement; then will societies like yours cease to look to others as lights and guides on anniversaries like this. Then will the errors and delusions that now rest like a cloud upon the interests of society, pass away. Hope and promise will spring from the soil, and prosperity, place and power will be found among the hills and valleys of an enlightened agriculture.

SCHOHARIE.

B. P. JOHNSON:

Secretary of N. Y. State Agricultural Society:

DEAR SIR—As secretary of the Schoharie County Agricultural Society, I am required to communicate to you such matters of interest as have been transacted by the society during the year. The annual exhibition of the society was held at Richmondville, the 9th and 10th of October. For several reasons, prominent among which was, that Richmondville is on the extreme western border of the county, and the weather for several days preceding, and during the fair, was very stormy and unfavorable, both the attendance and exhibition were much smaller than they would otherwise have been. Besides, the annual fair of the Schoharie county stock grower's association, was held a short time afterwards at Schoharie, east of the center of the county; but notwithstanding this, the exhibition was a very creditable one.

In the mechanical department the exhibition was probably the largest and best we have ever had in the county, for which the society was in a great measure indebted to Henry Woods, of the Richmondville iron works.

A course for the exhibition of horses, (of which there was an

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unusually large number, embracing many of well known abilities for speed) something over half of a mile around, was graded, and was in as good condition as could have been expected considering the wet weather of the week previous to the exhibition.

The annual address was delivered by Abram Becker, of South Worcester, Otsego county.

The receipt from the State and all other sources, was something less than the expenditures.

The next annual fair is to be held at the village of Schoharie.

Yours, respectfully,

N. T. LA MONTS,
late Secretary.

SCHUYLER.

The annual fair held September 19 to 21. The exhibition of the various departments was fully up to former years, showing an increased interest manifested by the officers and members of the society. The weather for the first two days was fine, the last stormy. A very interesting address was delivered by Rev. F. S. Howe. The society has a substantial and permanent existence among the institutions of the State. Its funds on hand and

received during the year	$722 15
Expenditures	473 24
On hand	$248 91

Officers for 1862—H. L. Gregory, president; J. O. Seymour, secretary: Norman Evans, treasurer, and seven vice presidents.

SENECA.

WATERLOO, *February* 18, 1862.

B. P. JOHNSON, ESQ.,

Secretary of N. Y. State Agricultural Society:

SIR—The report which I have to make of the proceedings of the Seneca county agricultural society, possesses but little interest, from the fact that nothing has been done by it out of the ordinary routine.

The annual fair and exhibition of the society, was held at Ovid, on the 18th, 19th, and 20th days of September last, being the first held in that village for many years. The Ovid agricul-

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tural association have leased for a term of years, and during the past year have enclosed 18 acres of ground in the immediate vicinity of the village of Ovid, and on this ground the fair was held. Although the weather during the first day was very unpromising, there was a large attendance, and the exhibition was, in every respect, of a very creditable character. The number of entries of horses exceeded that of any previous fair, and embraced a large number of beautiful and very valuable animals. Great attention has been paid of late years in this county, and particularly in the south part of it where the fair was held, to the rearing of horses, and the consequences have been a very highly improved stock. Some efforts have been made also to improve the breed of cattle, but only to a limited extent. An impression prevails—the correctness of which may be questioned—that our stock of cattle would be more advantageously improved by proper attention to the stock we now have, than from additions from abroad. The latter means of improvement have not been wholly neglected, and my own opinion is that much advantage has resulted from it. The animals which took the premium at the late fair at Ovid, were almost invariably of Durham stock, no premiums having been awarded to particular grades, but to the best cattle, male and female.

At the annual meeting, held for the purpose of electing officers and awarding premiums for field crops and grass seeds, premiums have always been offered by the county society of a very liberal character. From causes which I cannot explain, but certainly not from a want of the crops wherewith to do it, the competition for these premiums has been exceedingly limited. This has uniformly been the case, and the present year is not an exception. The following is a statement of the awards made at the recent winter or annual meeting of the society, to field crops:

Best five acres winter wheat, 150 bushels, on lot, John D. Coe, Romulus	$5 00
Best eleven acres of Mediterranean wheat, averaging 27 bush. to the acre, Peter Pontius, Fayette	5 00
Best three acres of spring wheat, 36 bushels to the acre, Wm. Kinne, Romulus	5 00
Best five acres of Indian corn, 119 bushels to the acre, in the ear, weighing 75 lbs. each, Wm. Kinne, Romulus	10 00
Best acre of Indian corn, 123 bushels, weighing 75 lbs. each, Wm. Kinne, Romulus	5 00

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Best three acres of oats, 96 bushels to the acre, William Kinne, Romulus $5 00
Best three acres of barley, 127½ bushels, M. B. Ritter, Varick 5 00
Best 35-100 of an acre of beets, 129 24-56 bushels of beets, J. D. Coe, Romulus 3 00

The treasurer made his annual report at this meeting of the society, of the receipts and expenditures for the year ending Dec. 30, 1861, from which I make the following summary. The receipts and expenditures for the year, embracing the fair at Ovid, and the premiums paid at the late winter meeting, varied very little, the receipts exceeding the expenditures about three dollars.

RECEIPTS.

Balance in treasurer's hands at date of last report		$383 97
Received from members at $1 each		693 00
do	for tickets, at 15c. each	350 43
do	for entrance at trots	56 50
do	for exhibitions on fair ground	33 50
do	from refreshment tent on fair ground	20 00
do	from State of New York	74 00
do	for lumber sold after fair	2 80
		$1,614 20

EXPENDITURES.

By expenses and premiums paid before and at winter meeting	$56 35
By premiums at annual fair	697 63
By fair expenses	352 94
By printing and advertising	100 00
By balance in treasurer's hands	407 78
	$1,614 20

The other business of the meeting having been concluded, the society proceeded to choose officers for the ensuing year.

CHARLES SENTELL, *Secretary.*

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STEUBEN.

The Steuben county agricultural society is supported by farmers, mechanics, and the industrial classes of our community. The annual fairs are held at the village of Bath as early in the autumn as the season and the crops will permit.

During the earlier days of the society many were distrustful of the benefits to be derived from it, but experience has demonstrated its utility, and we all feel the propriety and necessity for its support and success.

The agricultural society incites all classes to augment their yearly products, and to increase their domestic comforts. It tends to stimulate the production to such proportions that no import of any farm product may occur within the limits of the county—so to increase all our crops, larger and lesser, that an excess of each kind shall be left for export. This aim of the society is surely commendable; it deserves the support and cooperation of every farmer who loves his home, or would add to the general welfare, because this is the foundation of all wealth and prosperity in any community.

The Steuben county agricultural fair was well attended; the exhibition was creditable to our citizens; the season did not promise to be favorable to a large remuneration for tillage; the spring was backward, cold, wet, and retarded seeding until May and June. In the valleys of our principal rivers and creeks, where the soil is alluvial, crops were put in earlier; but upon our hills, where the clay and the loam is retentive of moisture, farm work was, of necessity, backward. They who became impatient of delay, and cast their seed upon an unfit soil, were punished for the violation of agricultural law, by a barren return for their labor. The wheat and barley crops, that were prematurely put in, were stifled in their growth from the first springing into life of the leaflet to the maturing of the ear, of the grown crop. During the last spring and summer the farmer, by experience, was taught one lesson: never to violate the absolute law of vegetation by sowing upon wet soil, or by stirring the land when too moist for cultivation. It will inevitably result in destroying the fertility of the soil, and ensure a poor crop.

The summer was cool and backward, so that the hay and grain harvest did not commence until in July and August, and the oats in August and September. This, together with low prices for

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produce, made many doubt whether our annual fair would compare with those of former years.

The year 1861 has demonstrated the stability of agricultural pursuits over all others. The farmer is not so immediately effected by the changes in trade and commerce; by the rise and depression of stocks; by expansion or contraction of the money market; by wars or rumors of wars. Every wind of rumor that crosses the Atlantic affects the pulse and the feelings of our commercial metropolis; ruffles the surface of business; very often surges the wave of fortune to its utmost depth. But the farmer, upon his farm, like some secluded lake, amid the surrounding hills, is scarcely sensible of the storms and commotions that agitate the seaboard. His crops may not yield an average; prices may decline; he shapes his expenditures by his income, and by a judicious management of his affairs feeds himself and the world.

The exhibition in cattle was greater in number and grade than at any former time. At our first fair the entries were made up principally of the common grades. Not one full blooded Devon or Short-horn was to be seen upon the ground. Henry McElwee exhibited some Durhams, partly blooded, that secured the principal premiums. Mr. Balcom made a few entries, in competition, that were deemed creditable, and were awarded premiums. From year to year thereafter, up to the present time, the grades of our cattle have improved, as if, in our advance in civilization, we have advanced our stock also, until they can favorably compare with any in the State.

In Durhams the entries were very numerous and the grades very fine. Messrs. McElwee and Robie, of Savona, E. C. Cook, James Lyon and R. B. Wilkes, of Bath, made the greatest number of entries of the best in grade and quality. It was the general remark upon the fair ground, that never before had so many fine Durhams been exhibited at our county fair.

In Devons an evident improvement upon former exhibitions was perceptible; the blood more pure; the outline more symmetrical; the breeding more careful; the keeping more perfect than heretofore. B. F. Balcom, of Painted Post, O. F. Marshall, of Wheeler, Charles Waldo, of Prattsburgh, have herds that reflect honor to themselves and credit to our county. They have carefully improved their Devons, until they present all the beauties of blood and outline incident to that celebrated stock. Mr.

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Waldo exhibited a yoke of working oxen; also two year old steers broke to the yoke, that were well calculated to impress the mind with the "nobility of the ox," in symmetry and outline. Other exhibitions were made of deserving merit, all contributing alike to the credit of our society.

Steuben county is not excelled by any in sheep. The wool-growers of our county have for a series of years improved their flocks, until they stand first in every respect. The texture and weight of fleece; the health and vigor of body and constitution; the habits and economy have alike been observed by our careful breeders. Every defect that could possibly mar the general or individual prosperity has been thrown out; none but the very best have been retained, and the stock therefrom re-culled and re-culled until every symptom of deterioration has been vanished from the sheep-yard; and health and vigor, and symmetry and texture, and weight, remain to re-pay the labor and care bestowed. He who is desirous of becoming acquainted with all the details of sheep husbandry, or with the appearance of the best standard "fine wools," would do well to visit the flocks of Myrtle and Ackerson, of Wheeler; of Champlin and Baker, of Urbana. They have brought their sheep to a degree of perfection scarcely attained in our community. Mr. H. Chichester and D. T. Gibbs, of Wheeler, have exhibited flocks that show careful breeding and a high grade.

The wool-growers of our county were induced to the opinion, at the time of shearing, that the business would not be profitable, and many were led to sell at low prices for fear of a still lower market. They forgot the commercial fact, that depressed markets generally advance, rather than retrograde; that government disbursements would create funds and a higher market, and that the staple would be in increased demand. They sold for twenty-five cents fleeces that, within three months, commanded forty-five and fifty; they offered to sell their flocks for less than half they would now be willing to take for them. The representations of speculators had much to do with this, and teaches the lesson to every man to weigh and judge for himself, rather than to be led astray by interested parties.

The exhibition of dairy and family products was evidence of increased attention to these things. Aside from wool-growing, there is not a more important branch of industry, than the dairy. The monetary history of our dairy counties show that for profit

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and increased prosperity, no other excels. Chemung, Cortland, Greene, Schoharie and Orange were embarrassed in all their farming relations until they commenced "dairying;" thereafter they gradually became independent and prosperous.

It was the remark of a gentleman connected with the Bank of Ithaca, "That the farmers were mostly indebted to the bank so long as they had lumber to sell; but when they bought cows, and kept dairies, they began to pay off their debts, and now have money to lend." The dairy puts in requisition the labor of every member of the family—the men, the women, the boys and the girls, all join in carrying it on. Where all are thus employed, judiciously, thrift and prosperity will surely follow.

There is no part of "the southern tier" better adapted to dairy purposes than Steuben. Our hills and valleys produce grasses in profusion; the water is pure and abundant. Our population is of that industrious class, ambitious to "go ahead," well calculated to conduct the business to advantage. When, instead of the thum, thum of the piano, we shall hear the "song of the milk-maid," in concert with the whistle of their brothers, then we shall date the rise and progress of a business, producing increased prosperity and wealth to our citizens. The indications are that our farmers will gradually increase their dairies, raise less grain, make more butter and cheese, until these shall become the staple products of the county.

The raising of grain (wheat, barley, oats and rye) has employed the chief attention of our farmers. Winter wheat was heretofore raised easily, and of a superior quality; our hills were noted for plump, heavy wheat. For the last few years the crop has been uncertain; the "midge," the worm, and sometimes the winter curtailed and destroyed it. During the last year but a small area has been cultivated, and the yield was nearly an average, say fifteen bushels per acre. Spring wheat has been generally sown, and raised with success—the "China Tea" and the "Scotch Fife" are deemed the best. The crop was somewhat injured by the wet spring and rust; the yield will not average more than twelve bushels per acre. The barley crop was not an usual average, owing to the same causes. In some neighborhoods the "army worm" made great havoc, cutting down and destroying all as they traveled onward. In other parts, the "joint worm"

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injured the crop, crippling it down, so that but a part yielded a return. The oat crop was a full average and of full weight.

During the maturing of the cereal crops, a singular insect made its appearance upon the heads, covering the chaff of each berry, until it assumed a black dotted appearance. These insects were seen throughout the county, feeding upon the young ear, sucking out its substance. By some it is said to be the precursor of the "Chintz bug," and that another year will develop that voracious plunderer. If so, we may anticipate a general devastation of our crops. These insidious pirates and robbers are more to be feared than southern rebels—bullets and steel may quiet these, but nothing yet invented by man can destroy those.

Our farmers have heretofore been pursuing a system of agriculture that may well be termed "*exhausting culture*," which gradually leads to a deterioration of the productive power of the soil. It gratifies our pride to make annual exhibitions of the products of our farms, and thus to conceal our short-comings in reference to the exhausting culture of our soil; but if anything stands prominent in the history of our system of agriculture, it is the *productiveness* of our crops, and the *destructiveness* of soil. The question has been discussed: How can we raise large crops, and still preserve the natural resources of the soil? We all desire, by means of large crops, to realize immediate returns; hence we take from the soil, and *assume* the right to extract therefrom its elements of grain, meat, wool and flax, to waste them at home, or to send them abroad—never to return. These elements we are extracting and wasting as fast as we can perform the labor or the world calls upon us for our products. Under the incitives of demand and profit, we ask, How can we continue to raise large crops, from year to year, in the future? Some recommend and introduce *subsoiling*. This insures large crops and a large income for a time, which will draw constantly on the subsoil to rob it as well as the surface of its elements of fertility. *Deep plowing* and large crops, from year to year, will introduce *deep sterility* in the end. When the true, practical answer is given to the question, by certain theory, demonstrated by practice, then our farmers may know how to keep up the fertility of the soil—they will then be delivered from the thraldom of empiricism, and be put upon a sure and prosperous culture of the soil. That answer is contained in the word "RESTITUTION"—restore to the soil, from year to year, the elements of fertility which

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your crops extract therefrom, and you may go on indefinitely to grow large crops.

The corn crop is of limited culture in Steuben. It is successfully cultivated throughout the valleys of the Conhocton, Canisteo, Tioga, and through the valleys of their tributaries. At the Painted Post and in Lindley, it produces a large yield. Mr. William Baker, in Pleasant Valley, has raised 105 bushels per acre, and usually good crops. The valley, gravelly and loamy soils, insure the best yield; the planting can be made early, the land is warm, and with suitable preparation and tillage produce a fair average, but upon our hills and a stiff clay soil, the attempt to raise corn is of doubtful expediency; some soft ears may be deemed the general yield, and maturity the exception. The late autumn was very favorable for ripening the crop—the absence of frost, the continued warm weather, produced the full maturity of ripeness even upon our hill-tops.

It was an interesting rural sight throughout the hills and valleys of our county, to witness the rich and varied hues of maturing vegetation, without frost to cut it down prematurely. The foliage, the grass, the whole vegetable kingdom grew on, without interruption, to that state of ripeness that, by the inevitable laws of growth and decay, they were destined to reach before falling into the ground. They put on all the colors and tints that combined to make up a most beautiful picture. The farmer, living amid such scenes, can best appreciate the ideal of all that is lovely and attractive in nature.

It is with great pleasure that we report the aid rendered by the ladies of Steuben to the exhibition. It was indeed, the embellishment that gave tone to the fair. What are cattle, horses, sheep, pumpkins, squashes, beets and onions, without flowers, pictures, embroideries, drawings and fancy work? What avail is wheat, corn, or other products, without bread, butter, cake, jellies and jams? It is the handiwork of our wives and daughters that makes all these things desirable. It is the "domestic industry" within doors that constitutes the true source of all our comforts and enjoyments. Those floral designs, those crayon drawings, those embroideries, those quilts and spreads, those wrappers, slippers and mufflers, all suggestive of the beautiful and the useful; that bread and butter, that cake, preserves and sugar, all indicative of refined living, were evidences of the care taken by our ladies to do their part to make the exhibition use-

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ful and attractive. There were "home-made cloths," reminding the visitor of by-gone days, when the distaff and the loom were useful appendages of the house, and when our wives and daughters deemed it more creditable to spin and weave, to sew and knit, than to "*parlez vous francais*," or to thumb the piano. We love to honor the women who still preserve the habits and perpetuate the noble virtues of those days. We honor the women whose hands are familiar with household duties, whose sphere is home, and who, by their example, teach lessons of industry, frugality and self-reliance, whose presence is as sunshine throughout the domestic circle.

The annual exhibition of agricultural implements was very gratifying to all engaged in that department of industry. One-half of the labor of tillage is saved by these improvements, now within the reach of all. We bear in distinct remembrance the old wooden plow, with its wrought-iron share, by means of which the ground was scarified and the wear and tear of team immense; then, when Wood & Brundage introduced the patent cast-iron, saving draft and labor, from that time onward, improvements have been successive and successful. The premium implement of last year gives way to others the year following, and they to others. The "Wiard plow" was deemed the best for general use one year ago; now the award is made to George P. Avery, of Prattsburgh. Ketchum and Manny were ranked first for mowers and reapers; now the Buckeye and the Hubbard are preferred. The revolving horse-rake for a time stood pre-eminent; now the wheel-rake takes its place. Great improvements were realized in the hay-fork; now, with rope and pulley and tines, the labor of "mowing away" is made easy and expeditious. There is no department of farm labor for which the mechanic and the machinist have not offered improved implements; they exhibit them at our annual fairs, inviting the farmers to purchase, demonstrating that our mechanical industry is advancing equally with the agricultural. The exhibition of farm wagons, buggies and carriages, was fully commensurate with other things. Mr. H. Loomas, of Bath, and E. J. Armstrong, of Campbell, were the principal exhibitors. In fanning mills, Gray & Brother made the best exhibition. A. & J. Beekman, in doors, sash and blinds. In harness, A. Robinson and John Abel. In iron work, O. C. Mattison. Charles Waldo and S. Chase, in ox yokes. Bib & Sons, of Bath, in cooking stoves. No department, within or without doors

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for convenience or utility, but were exhibited articles of improved qualities.

During the fair a lumber wagon, drawn by four horses, entered the grounds, upon which was a huge wine cask, surrounded by men with wooden hammers beating upon it, as upon a drum, the "march of the god of wine." It was an *uproarious* measure, that for its novelty, excited much curiosity. The cask belonged to the "Pleasant Valley Wine Company," near Hammondsport.

Probably no section of the county is as favorable for the production of fruit as Pleasant Valley, extending from the south head of the Crooked lake to Cold Spring. The soil is alluvial, open and porous, the climatic features adapted to the culture of fruits; some of the finest exhibitions of apples, pears, peaches, plums and grapes have been made by residents of Pleasant Valley.

Some seven years ago, Judge Larrowe and others advanced the idea of the practicability of the culture of the vine upon the sloping hills surrounding Hammondsport. They purchased slips and roots of the Isabella and Catawba, and planted vineyards. They found their culture to be very successful, yielding fine fruit. This induced others to enter into the business, and eventually to form a stock company in connection therewith and for the manufacture of wines and brandies. The hills from Cold Spring to the Crooked lake, and down the lake for some distance, are now covered with vineyards; wine press and vaults have been erected, a brandy "steam still" procured, and pure wines and brandies are being manufactured by the company. At this establishment the best variety of vines are for sale, offering great inducements to those who wish to enter into the cultivation of the vine to purchase. Thus, from the suggestion and example of a single individual, or at most two or three persons, a prosperous business has grown up within our county, promising for the future a source of employment to many, and of wealth to a large class of our citizens.

In October last the society held its second annual fair, at which the attendance was very good, and the show of fruits and flowers satisfactory. The fruit exhibited, particularly the grapes, were very superior in size and flavor, giving evidence of the adaptation of that immediate location for their cultivation.

The receipts and disbursements of the Steuben county agricultural society, for the year 1861, were as follows, viz:

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Receipts.

Cash received for memberships		$513 00
do	from sale of tickets	353 39
do	from State Treasurer	145 00
do	by donation	50 00
do	for exhibitions on fair grounds	22 00
		$1,083 39

Expenditures.

Cash paid R. Robie, recent treasurer		$72 78
do	expenses of fair, &c.	310 17
do	premiums awarded	661 00
Cash on hand		39 44
		$1,083 39

Amount of premiums awarded and unpaid, $44.50.

All of which is respectfully submitted.

G. DENNISTON, *Vice-President.*

PRATTSBURGH, *December* 30, 1861.

The Fruit Grower's association, of Pleasant Valley, was formed on the first of March, 1858, for the avowed purpose of experimenting with the different varieties of grape and their adaptability to this climate. A fund was raised with which a choice variety of grapes were purchased and set upon the lands of E. P. Smith. These vines are now growing finely, and have yielded an abundance of cuttings which have been propagated and distributed amongst members of the association.

The first fair of this association was held on the ninth day of October, 1860, in Hammondsport. The association had previously so changed its object as to embrace other fruits. This fair was not a large one, nor was there as great a variety of fruit shown as would have been, had the season been propitious for the growth of fruit. But what was presented, was of quality and size that would have done honor to a county or state fair. The receipts at this fair overbalanced the expenses, so that a fund was left over for the following. The second annual fair was held at the same place, on the 4th of October, 1861, and, although the roads had just been rendered almost impassable by a tremendous flood, and our entire village almost demolished, yet

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the attendance was very good, and the show of fruits and flowers was not only satisfactory to those from a distance, but creditable not only to the exhibitors but to the region growing them. The fruit shown at this fair, and especially the grapes, presented all the peculiarities of vigor and luxuriance, speaking in silent praise of the advantages of this immediate location. Both soil and climate tend to the perfection of fruit in the most satisfactory manner, and render it evident that this is peculiarly a favored locality for the growth of all leading fruits. The grape has recently received a great share of the attention of fruit growers here, and there is now about one hundred acres in bearing. The last crop was not very bountiful, owing to the severe winter and a late spring frost which cut off much of the fruit that had withstood the winter. What fruit there was—(I mean grapes only)—was of superior quality and size. It was not uncommon for a single cluster to weigh one pound, and one instance I heard of three clusters weighing five pounds. Some of the grapes were sent to foreign markets, but they were principally sold to the H. P. and P. V. wine company, and worked into wine by them.

TIOGA.

B. P. Johnson, Esq., *Secretary of*
N. Y. State Agricultural Society:

Dear Sir—I herewith send you my report as treasurer, of Tioga County Agricultural Society, for 1861.

Our fair was held on September 25th, 26th and 27th. The first two days the weather was fine and attendance large; the third and last day was very rainy and bad weather, and attendance slim. Our receipts were as follows:

First day	$363 00
Second day	395 00
Third day	65 00
Refreshment stand	50 00
Side show	20 00
Swing man	15 00
Rent of seats	6 00
Received from State	61 00
	$975 00

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Our expenditures were for rent of ground	$120 00
Printing for the fair	63 50
Old debt and interest	347 75
Premiums paid	550 50
All other expenses and help	106 25
	$1,188 00
Balance due T. I. Chatfield, treasurer	213 00

All of which is respectfully submitted.

T. I. CHATFIELD, *Treasurer.*

OWEGO, *December*, 1861.

TOMPKINS.

Annual Report of the Tompkins County Agricultural Society, 1861.

The annual exhibition of the Tompkins county agricultural society for 1861, which was held at Ithaca on Wednesday, Thursday and Friday, 11th, 12th and 13th of September, was very much injured by a cold rain storm, which prevailed during nearly the whole of the first and second days. The society has suffered in a like manner at each of its annual fairs for the last four years. There was also less than the usual interest this year, on account of the public mind being so much engrossed by the excitement produced by the great southern rebellion, and the efforts of the Government for its suppression.

The exhibition was, in most of its departments, highly creditable to the county. The display of cattle has seldom, if ever, been excelled. Among the rest was a large number of Short-horns and Devons, from the herd of Mr. Ezra Cornell, embracing several animals which have won first prizes at the State fairs of 1858 and 1860. Many very excellent animals were also exhibited by Messrs. Robertson and P. V. Snyder, of Dryden, John P. Hart, of Groton, David Crocker, of Lansing, Levi Williams and William L. Mitchell, of Ithaca, and others.

There has been a wonderful improvement in the cattle of our county during the past few years, and more especially among those of our farmers, who have had the enterprise to persevere in the use of bulls of the improved breeds. Several of the farmers of this county have nearly, if not quite, doubled the average value of their cattle by this practice. Too many, however, from

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a false idea of economy, seek the improvement by the use of half and quarter bred bulls, and are generally disappointed and disgusted with the result.

To illustrate the importance of this improvement to the farmers of our county, it is only necessary to refer to the statistics of the dairy for the last twenty years. The census of 1845 shows the average product of butter per cow in Tompkins county to be only 102 lbs. This was about the period that our improvement in stock became so apparent as to attract attention. A few years earlier it was deemed a rare occurrence to find a cow from whose milk one pound of butter per day could be produced. The heifers of "*Arab's*"* get began to come into milk about this time, and their extraordinary milking properties turned attention to the use of Short-horn bulls; and our census of 1850 shows an increase of seven lbs. of butter per annum for each cow milked in the county—nearly a gain of one and a half lbs. per year for each cow.

The census of 1855 shows the annual average product to be 113 lbs., and the statistics of 1860, very carefully collected by school districts, shows the annual average to be 128 lbs. per cow. Here is a full increase of twenty-five per cent in the value of the cows of our county for dairy purposes; and it is believed the value of the animal for the shambles has been even greater, thus doubling the value of the animal,—an improvement, if placed at the low figure of $10 per head, will make an aggregate of $150,000 on the cows, or probably $300,000 on the cattle of all classes in the county.

The exhibition of horses was also of unusual excellence, but the rain made the condition of the track so bad that the main features of the horse show were postponed until the middle of October. The attendance at this time was not, however, as numerous as had been anticipated, owing, doubtless, to the late day of the season. The number of colts raised in our county is from eight hundred to one thousand per annum, and the number of horses we send to market is about the same number, averaging about $95 per head, giving us, perhaps, one year with another, about $100,000 as the value of our horse crop.

Our farmers are still alive to the improvements in this noble animal, and we are looking forward with sanguine hopes for the

* "*Arab*" was a thorough bred Shorthorn bull, bred by Chas. Henry Hall, and carried to Tompkins by Mr. Ezra Cornell about the year 1840. His pedigree was lost; his heifers all proved superior milkers.

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results of a new infusion of blood from the pure Arabian horse, introduced through Gov. Seward, which is placed within our reach through the efforts of one of our citizens. We cannot doubt but beneficial results will follow from one or two crosses of this Arabian blood, when we reflect that all our celebrated racers refer to their Godolphin ancestry with pride.

The display of sheep and swine, although not as extensive as would have been desirable, was very satisfactory, and showed a marked improvement in quality over preceding years.

The sheep of our county have decreased in numbers during the last twenty years nearly one hundred per cent., very much, we think, to the disadvantage of the farmer. Instead of 50,000, which is probably about the number of the sheep in our county, we believe the true interest of our farmers demands four times that number, and if the wisdom of our Legislature will give us such protection as a stringent tax upon dogs would afford, with a right to kill all dogs that roam at will and unaccompanied by their owners or keepers over our farms, we believe our flocks would at once show a marked increase, and that a corresponding improvement in the fertility of our farms would follow.

The in-door exhibition was very creditable, although it was much curtailed by the bad weather. The display of green-house plants, and of the more hardy varieties of fruits, was particularly gratifying. The extremely cold weather of the 7th and 8th of February last, entirely destroyed the cherries, peaches and pears, and, to some extent, the grapes and apples, thus rendering our exhibition deficient in several of its most interesting features.

That portion of the county bordering upon Cayuga lake is exceedingly well adapted to the growth of fruit of all kinds, and large quantities of a very superior quality are usually produced. The failure of the fruit crop of 1861 is a severe loss to this neighborhood, amounting in the aggregate to many thousands of dollars.

The question of agricultural statistics is very deservedly commanding the attention of the farmers of our county; all persons who have given the subject the least attention, recognize the important fact, that to lay a broad and enduring foundation of improved husbandry, we must first study the character of our soil, its present productive capacity, the purposes for which it is best adapted, the extent and character of our present improvements, our present productions, and, in general, our present

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resources; to this end, a well digested system of annual statistics seems indispensable.

It is with the highest satisfaction that I am able to announce that Tompkins county has inaugurated such a system. Mr. Ezra Cornell, aided by the enterprising young farmers of the several school districts of our county, collected the statistics for the year 1860, and we refer the friends of agriculture in other counties of this State, to that report, as published in the Transactions of the New York State Agricultural Society of that year, and solicit their co-operation in their respective counties in the same good work. I have the satisfaction also of reporting that the collection of the statistics for the year 1861 is now in progress, and will soon be completed, by which we shall be able to compare the products and improvements of 1860 with those of 1861. I will beg leave here to suggest that this question of an annual collection of statistics in the great State of New York is one not altogether unbecoming the attention of our legislators.

The annual address was delivered on the afternoon of the third day, by the Hon. Henry S. Randall, of Cortland, than whom, few men in the State have done more with their voice, their pen and their purse, for the improvement of agriculture. The address was one particularly adapted to an assemblage of farmers, replete with valuable practical suggestions, and was delivered in the happy style peculiar to the distinguished speaker.

Beside the county society, there are two local societies, which hold annual fairs, one at Dryden and the other at Trumansburgh. The people of those neighborhoods take great interest in their respective societies, and they are both in a highly prosperous condition. The annual fairs at each of these places would do credit to any county society in the State.

The Ithaca Farmers' Club is also organized as a town society, but has held no exhibitions as yet. Its members keep a large reading room, where they have accumulated a library of over 1,200 volumes of agricultural and other valuable books, and are accumulating a museum of agricultural specimens, seeds, minerals, &c., &c. Their club room is supplied also with most of the agricultural and horticultural journals of the day, and their doors are thrown open to the use of the county and other societies, denoting a degree of liberality that is highly commendable, and for which I feel constrained to tender the thanks of the county society.

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ANNUAL MEETING.

The annual meeting of this society was held at the room of the Ithaca Farmers' Club, on Saturday, January 4th, 1862.

The annual fair for 1862, was appointed for Wednesday, Thursday and Friday, September 24th, 25th and 26th.

JOSEPH McGRAW, Jr., *President.*

ULSTER.

Hon. B. P. JOHNSON:

DEAR SIR—The fair of the Ulster county agricultural society was held on the society's grounds, near the village of Kingston, on the 25th, 26th and 27th of September. Owing to the depression of the times, unfavorable weather and the national fast day occurring at the same time, the receipts and attendance were not as large as the year previous, but still were larger than the most sanguine had reason to expect. The display of cattle, and especially of horses, showed a marked improvement over those exhibited the previous year.

It was generally remarked by visitors from abroad that a finer collection of horses had never been seen at any county fair; this will be evident to all, when I state that among the horses on the ground were the well known stallions "Geo. M. Patchen," "Ethan Allen," "Comet," and others of well known celebrity.

The operations of the society are beginning to be apparent on the agriculture of the county, and farmers are generally making rapid improvements in all that pertains to their profession.

From inquiries instituted by the society, for the purpose of ascertaining the average per acre of crops in the county, I deduce the following figures: Winter wheat, 19 bushels; spring wheat, 12½ bu.; corn, 46 bu.; rye, 22 bu.; oats, about a two-third crop, 39½ bu.; potatoes, 133 bu.; hay, 1⅝ tons.

P. HENRY BRINK, *President.*

WARREN.

The 5th annual fair was held on the society's grounds, Luzerne, September 25th to 27th.

The exhibition formally opened on Thursday, 26th; Friday was unpleasant, and prevented as large attendance as expected. The illness of Judge Edmonds prevented an address. But not withstanding the storm, the excited state of the country—dis-

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tracted by civil war and the presence of hard times—presenting many discouragements to an exhibition of this kind, still the exhibition was a complete success, comparing favorably with the previous ones of the society.

The society's grounds embrace about seven acres, on the outside of which is a track for the display of horses, leaving the remainder covered with grass for the rest of the show and visitors; a spacious building for manufactures and home industrial productions; another building for produce; music stand, judges' stand, and seats for spectators; pens for sheep and swine, railings for horses and cattle, complete the arrangements for the show.

The receipts from all sources	$331 28
Expenditures	298 56
	$32 72

W. H. WELLS, *Treasurer.*

Sixty-eight volumes of Transactions on hand.

WAYNE.

B. P. JOHNSON, ESQ., *Secretary, &c.:*

Agreeably to usage, I herewith send you a report of our doings. The annual fair was held on the 10th and 11th days of October, on the grounds of the society in the village of Lyons. Although the weather for a few days previous to that time was rainy, thereby flooding in part the ground, the fair was well attended, comparing favorably with former years, as was also the show presented by the patrons of the society. It was strictly a farmers', mechanics', and horticultural exhibition, no trials of speed, and no outside inducements, too commonly resorted to by agricultural societies to invite a crowd, and carry away premiums to the detriment of those legitimately entitled to them, and for whose benefit such societies were instituted.

Every premium offered was promptly paid when called for, and a balance remains to the credit of the society.

The exhibition of blooded stock was very fine. A good deal of attention has of late years been given hereabouts to its introduction. Fat and working cattle were well represented, as were also sheep, swine and horses.

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Probably in no county in the State has more attention been given to the raising of good fruit than this, and none rewards the producer better, both in quantity and quality. The specimens exhibited were an honor to both.

As regards the entries of farm and mechanical implements, there were quite a number, and meritorious. Grain and vegetables were excellent, and well represented. The crops in this section were generally good.

Floral hall was attractive, finely decorated with flowers, and the handiwork of the ladies of the society.

The officers of the society for 1862, are as follows:

President, S. B. Gavitt, Lyons; Vice-President, H. G. Dickerson, Lyons; Secretary, H. P. Knowles, Lyons; Treasurer, W. D. Perrine, Lyons; Directors, Eron N. Thomas, John Bradley, Henry Graham, jr., H. I. Leach, F. Palmer and John D. Westfall.

S. B. GAVITT, *President.*

WESTCHESTER.

The 17th annual fair of the society of agriculture and horticulture, was held on the 23d, 24th, and 25th days of September, 1861, at the village of Mount Vernon, on grounds provided by the spirited inhabitants of that village and neighborhood. The grounds were extensive and well enclosed, embracing a spacious tent as a floral hall, an abundance of stalls and pens for stock, and an excellent course or track for the exhibition of horses.

The entries were not as numerous as at the fair of 1860, and fell far short of what was expected from a section of the country possessed of such ample resources. The deficiency was especially manifest in blood stock, large numbers of which are owned in the immediate neighborhood of the grounds; but the entries in this department, as far as they went, were good. The exhibition of horses was also good, and their performance on the course attracted a large concourse of gratified spectators.

The show of agricultural implements and machinery was not as numerous as on some former occasions, but was respectable, and embraced some new and useful machines; conspicuous among them were two large stone and stump extractors and wall layers. One of them was Lyon's patent, exhibited by parties from New Haven, Connecticut. This machine received its power from a screw instead of cogs, and had some other new and apparently

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important improvements. There was also on exhibition a small steam wagon, for which the inventor claimed some new and important improvements; but whether they can be made useful to the farmer so as to bring them into general use, there appeared to be some question in the minds of a large number of the practical farmers. One great objection to its use as a wagon would be its liability to frighten horses.

The fruit on show was especially fine, particularly in foreign and native grapes, and choice varieties of pears and apples.

Garden vegetables were good, but did not surpass previous exhibitions. The entries in field crops, were made solely from the northern parts of the county. The first premium on wheat was awarded to 41½ bushels of 64 lbs. per bushel to the acre; the second to 35 bushels of 64 lbs. to the acre. The first premium on potatoes to 326⅝ bushels per acre, and the first premium on carrots to 662 bushels per acre. It is to be regretted that the entries were not more numerous in a department which it is the chief aim of the society to encourage and promote.

The amount of premiums offered by the society was $796; books 136, and 20 diplomas. Awarded $496, 13 books, and 35 diplomas.

A novel feature of the fair was the presence of the children of the public schools of the village and neighborhood, who were admitted free of charge. Their neat appearance and orderly conduct were highly creditable to the parents and teachers, and their evident enjoyment very gratifying to the officers of the society. It is to be hoped that such visits will be made to all our future fairs.

The result of the fair, in a pecuniary point of view, was quite satisfactory, putting the society in ample funds to meet its engagements, and leaving a respectable balance on hand.

In closing this report, I will state that the officers are well satisfied that whatever apparent diminution of interest there may have been manifested in the exhibition, it has not arisen from or been caused by any coldness on the part of the inhabitants towards the society; or because their faith in its usefulness is in the least diminished, but has arisen wholly from the fact that the present unhappy condition of our once prosperous and happy country demands and receives the whole of our energies.

The list of officers for 1862, you will receive from our secretary.

Yours, truly, HENRY KEELER, *President.*

SALEM, *Dec.* 30, 1861.

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WYOMING.

No report of this society, except the financial report to the Comptroller at the annual meeting, has been received.

The officers chosen for 1862, are:

Duncan Cameron, Covington, president.

Ephraim Wheeler, Orangeville, vice president.

H. A. Dudley, Warsaw, secretary.

T. H. Buxton, Warsaw, treasurer, and a board of directors.

YATES.

The annual exhibition was held at Penn Yan. The attendance was unusually large. The show of cattle and horses very good; the show of sheep and swine not so large, but of excellent quality. Mechanical and agricultural implements well represented, and the interest of the people in our annual exhibitions seems to be unabated. The address delivered by Solon Robinson, of New York, was listened to with marked interest by thousands of people. It has been the source of much comment by our farmers since its delivery, and is frequently quoted from.

Receipts	$785 56
Expenses	568 92
Balance in treasury	$216 14

AMERICAN INSTITUTE.

To the New York State Agricultural Society:

The undersigned, Trustees of the American Institute, in conformity with law, beg leave to present their annual report for the years 1861–'62:

Since the last annual report, the American Institute have met with a severe loss in the death of their venerable associate and Recording Secretary, the Hon. Henry Meigs, who served the Institute with fidelity in that capacity for more than sixteen years. The various addresses, translations and reports contained in the Transactions of the Institute, bear witness of his indefatigable industry and devotion to the cause of agriculture.

The Institute also sustained a further loss in the death of Dr. D. M. Reese, late one of the Vice-Presidents, and at the time of

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his decease, a member of the committee on manufactures, science and arts.

The active operations of the Institute, during the past year, have been confined principally to the Farmers' Club, to the Polytechnic Association, and to the Library.

The Farmers' Club continues to be popular, and its meetings are well attended. The subjects discussed are generally instructive, and always of a practical and useful character. This club commends itself to the favorable notice of all real friends of agriculture.

The Polytechnic Association continues to show improvement in its manner of discussing scientific subjects brought before it; its organization is much more complete and efficient than ever before, and it promises increased usefulness. The attendance during the year has shown an increase of members, and the discussions, although mostly of a scientific character, were exceedingly interesting.

The Institute, at a meeting held on the 5th day of June last, referred to the Trustees the duty of appointing a person to report the meetings of these clubs, which resulted in arrangements being made with a skillful short-hand reporter, for accurate reports of the proceedings and discussions of both clubs. The manner in which the duty has been performed, the Trustees believe has been satisfactory.

The board of managers of the annual fair, after mature deliberation, deemed it advisable to defer holding any general exhibition during the past year, but in order to continue the encouragement which the Institute has held out to farmers and mechanics for more than thirty years, the managers offered thirty special premiums for improvements in agriculture and the mechanic arts, and the subjects for which premiums were offered, were referred to the Farmers' Club and Polytechnic Association, the competing articles, after due examination by the respective clubs, to be reported upon to the board of managers.

The lease of the property of the Institute, No. 351 Broadway and No. 89½ Leonard street, expires in May next.

The premises were leased in 1859, for three years, at a rent of

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$11,000 per annum, but in consequence of the depressed state of the country, the full amount of this rent will not be collected the present year.

The taxes on this property for 1861 were $1,631.46, being an excess of $290.47 over the previous year. An assessment of $500 has also been made on the property, for the widening of Worth street.

The lease of the rooms now occupied in the Cooper Union, for which an annual rent of $1,750 is paid, expires on the 1st day of May next. The Institute has a refusal for three years more, at the same rent. The Trustees are of opinion that if the Institute should take a new lease it should only be done at a considerably reduced rent.

The Trustees do not deem it necessary to more than allude to the continued usefulness and popularity of the library. The report of the library committee will exhibit its improved condition.

The Transactions of the Institute and of the New York State Agricultural Society have been received by the Institute from the Secretary of State, and have been distributed to members as called for. The Transactions of the Institute have been forwarded to the various foreign societies and kindred domestic associations with whom the Institute have arranged mutual exchanges.

The Trustees regret that they are unable to show the same improvement in the financial affairs of the Institute, which they were able to present in their last annual report. It will be seen by the report of the financial committee that while the expenses have been materially lessened during the year, the receipts for rents have fallen off nearly or quite one-half.

The present unsettled state of our country has affected the operations of this Institute, as well as of kindred associations throughout our land. But it is confidently hoped that when prosperity again prevails, the Institute will feel its genial influence, and again take its position among the most energetic and enterprising of the industrial institutions of the country.

The oldest of its kind in the United States, and the one from which has sprung all the farmers' clubs, and most of the mechanical associations of the country, it will still seek to maintain its pre-eminence as the pioneer in all advance movements having for

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their object the general improvement of the mechanic arts and the agricultural development of the nation.

WM. HALL, W. HIBBARD,
JOHN GRAY, THOMAS McELRATH,
D. S. GREGORY, BENEDICT LEWIS, Jr.,

NEW YORK, *February* 5, 1862. *Trustees.*

Report of the Board of Managers of the Thirty-third Annual Fair of the American Institute.

The Board of Managers of the thirty-third annual fair of the American Institute respectfully report:

That immediately after their election they organized by the appointment of Mr. James C. Baldwin, as chairman, Mr. W. H. Butler, as vice-chairman, Mr. Thomas McElrath, as corresponding secretary, and Mr. John W. Chambers, as recording secretary.

The subject of holding a fair was discussed at several meetings, and after mature deliberation it was deemed advisable, in the present unsettled state of our country, to defer holding a general fair during the year.

The Board of Managers resolved to offer thirty premiums, consisting of gold and silver medals, for articles deemed of importance to the public, and the subjects were appropriated between the Farmers' Club and the Polytechnic Association, requesting these associations to examine and report upon the articles which might be brought before them for premiums.

It was not until the month of October that these measures were finally adopted, and immediately thereafter a circular was issued and distributed extensively through the country.

The late date at which this circular was issued, and the public mind being almost exclusively occupied with the existing national troubles, inventors, manufacturers and others, did not so promptly respond to the invitation held out to them as the managers had hoped would be the case. But within the last two weeks, a number of applications have been made to compete for the premiums, and your managers at a meeting held on the 29th of January, resolved to extend the time for the reception of applications to the 5th day of February instant.

Under the circumstances, the board of managers ask the Institute, that they may be discharged from all further consideration

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of this subject after the 13th inst., and that the whole subject matter relating to the premiums, be referred to the new board of managers.

Respectfully submitted.

NEW YORK, *February* 5, 1862.

JAMES C. BALDWIN,
WM. H. BUTLER,
WILLIAM EBBITT,
THOMAS F. DE VOE,
JOHN V. BROWER,
GEORGE TIMPSON,
JOHN JOHNSON,
THOMAS WILLIAMS, JR.,
ANDREW BRIDGEMAN,
JOHN B. PECK,
ISAAC M. PHYFE,
T. F. ENGELBRECHT,
WILLIAM S. CARPENTER,
GEORGE PEYTON,
JAMES KNIGHT,
CYRUS MASON,
WILLIAM COTHEAL,
HENRY STEELE,
GEORGE M. WOODWARD,
GEORGE R. JACKSON,
JOHN D. JERSEY,
CHARLES PERLEY,
CLARKSON CROLIUS,
CHARLES A. WHITNEY,
THOMAS McELRATH,

Managers.

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REPORTS OF TOWN AND UNION AGRICULTURAL SOCIETIES, 1861.

TOWN SOCIETIES.

FIFTH ANNUAL REPORT OF BAINBRIDGE AGRICULTURAL SOCIETY.

B. P. JOHNSON, ESQ., *Secretary of*
New York State Agricultural Society :

The unsettled state of our government—the financial embarrassment of our country—the call upon our young men to bear arms in defence of our Union—the multiplicity of town shows in our immediate neighborhood—and feeling assured that by giving the farmers of our town an "excuse" to attend neighboring exhibitions, and a short respite to those who have borne the burden of toil, would inspire them with renewed interest in their own society, were considered by the officers, a suitable cause to forego the pleasure of an annual fair the past season. Nor have we been disappointed. The annual meeting held on the 18th inst., was fully attended, and the warmth and enthusiasm manifested by those present, was an earnest of the life and prosperity of our society.

Our town, as yet scarcely freed from the sound of the lumberman's axe, and still struggling with the blight it has occasioned to agriculture, is behind many towns, more favored or less cursed; yet the interest beginning to arise is manifested by the improved stock from some of the best herds of this and adjoining States; the substantial and permanent improvement of the farms and farm buildings, and the increase of the home comforts, encourages us to hope that a prosperous and a happy future is before us. And although we are told that "the race is not to the swift nor the battle to the strong," we enter the arena with strong arms and stronger hearts, and challenge ALL to meet us in the contest.

The officers for the ensuing year, are Nelson Ireland, president, Jno. Banks, vice president, Joseph Juliand, 2d., secretary and treasurer.

A. J. SANDS, *President.*

JOSEPH JULIAND, 2D., *Secretary.*
January 26, 1862.

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BAINBRIDGE FARMERS' CLUB.

B. P. JOHNSON, ESQ.:

We herewith transmit to you the first annual report of the Bainbridge farmers' club, and in so doing, it may not be amiss to state the object we have in view in establishing the club, the means put in requisition to secure that object, and the result.

First. As expressed in our constitution, the object which we have in view, is "the mental improvement, social advancement and moral elevation of the farmers as a class." This is the object.

Second. For the purpose of securing it, we meet weekly at our club rooms and discuss some subject pertaining to agriculture—or perhaps more properly speaking, talk upon it—each bringing his own experience and observation as an offering. The peculiarities of our soil and climate, the best mode of cultivating and enriching, the best and most remunerative crops—in short, all things pertaining to agriculture are brought before the club, and each in its time discussed until all are satisfied, if not convinced. During the winter of 1860–61, we supported a series of lectures, and among other and lesser lights, we were so fortunate as to secure the services of L. H. Tucker, Esq., who gave us a lecture on "English farms and farming," which evinced much thought and observation, and was productive of much good. Major Dickinson engaged to lecture for us but other engagements prevented. This winter we propose to renew our series of lectures, and in addition to our weekly meetings, to meet once in two weeks at the residence of one of the members, view his farm, farm buildings and stock, and placing him on the witness's stand; each member has the privilege of interrogating him upon any subject connected with the management of his farm, stock, &c., &c., and the answers to which are made the subject of discussion, and if necessary, of friendly and timely admonition.

Third. Thus each looks to the others to have his errors pointed out in order that he may apply the remedy; and thus mind is brought to cope with mind, prejudice to clash with prejudice, until truth takes the place of error. Our "social feelings" are advanced, our trials, our perplexities and our cares, are never brought into the club room, and we come together and mingle as brother mingles with brother, each feeling an interest in the prosperity and happiness of the others. Our "moral feelings" are

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elevated, and we pass from the club rooms to our homes better prepared to perform the duties of son, husband, father and brother.

We have about 20 members, each as anxious to learn as to impart.

Our treasury is supplied by fifty cents for membership, and when that fails to meet our wants, by voluntary subscription; and after defraying the expenses thus far, we have ten dollars in the treasury.

A. J. SANDS, *President.*

JNO. BANKS, *Secretary.*

Dated, *February* 1, 1862.

FARMERS' AND MECHANICS' CLUB OF CLAY, ONONDAGA COUNTY.

The Farmers' and Mechanics' Club, of Clay, was organized for the promotion of agriculture and the development of mechanic arts, to which end a club was formed and weekly meetings are held from the 1st of December to the 1st of April, for the discussion of questions pertaining to the farm, the garden and the shop. Our meetings are held on Saturday evenings, and quite an interest is manifested.

A fair and exhibition was held September 18th and 19th, on the grounds of the society, at Euclid, and a good representation of all kinds of stock, from the best kinds of imported stock down to native; the products of the farm were in abundance; Floral Hall was well filled with domestic manufactures, also products of the dairy.

One hundred and fifty-four premiums were awarded; our premiums are pro rata, the second one-half as much as the first, &c.

SOLOMON OVERAKER, 1*st Vice-Pres't.*

JOHN G. MOSHER, *Recording Secretary.*

DRYDEN.

The sixth annual fair of the Dryden agricultural society was held at their fair ground in Dryden village, on the 3d and 4th days of October, with marked success.

All the departments were well represented. The interest manifested was lively and harmonious. The interest taken in this section, in the improvement of stock, is growing and spreading with good results, as the exhibition showed.

There was as fine a show of horses, cattle and sheep as can be found in the State.

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The fruit department was not as fully represented as usual, there being a scarcity of fruit in this section, yet respectable for the season.

The show of vegetables was large and unusually fine, as it was also of farm implements and machinery.

We have been in the habit of holding a free fair in the spring, for the exhibition and sale of stock and agricultural implements, which has created much interest, with beneficial results. They are well attended and well represented. The change of the fee for membership tickets, from fifty cents to one dollar, caused some anxiety as to the financial success of our fair, especially at this time; but we were disappointed, as the receipts show; the weather being unusually fine during the exhibition, may have contributed somewhat to our success.

The interest taken in agricultural and horticultural fairs all over the country is growing and increasing with the prosperity of the people, and if they are not diverted from their legitimate purposes, there will great good result from their establishment.

The following is a statement of the finances of the society for the year ending January 11th, 1862:

Balance in treasury last year	$25 97
Receipts from all other sources	869 70
Total	$895 67

Payments.

For premiums and incidentals	$463 20
Balance to be applied in payment of debts of society	432 47
	$895 67

The act of 1855, for the organization of town agricultural societies seems to require us to give a list of the premiums awarded, and to whom, and for what purpose; we therefore annex hereto a printed list of such as were awarded at our last annual fair, deeming it a sufficient compliance with the said act.

CHARLES GIVENS, *President.*

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ITHACA FARMERS' CLUB.

R. P. JOHNSON, ESQ.:

Secretary New York State Ag. Society:

SIR—The Ithaca Farmers' Club was organized on the 1st of January, 1859, as an incorporation of a town society, under the act of 1855 for the promotion of agriculture, for the following objects, as specified in the certificate of organization, viz: "The business and object of said club shall be to improve the agriculture, horticulture and the mechanic arts, and advance the standard of knowledge among the producing members of society by the establishment of a library and reading room, the collection of an agricultural museum, and the establishment of a system of interchange of seeds and specimens and mechanical productions."

During the fall and winter season it has been the practice of the club to hold weekly meetings for discussion and a social interchange of ideas.

We have pursued the object of our organization steadily in the collection of a library, until we have at this time about 1,500 volumes of valuable books, and 1,000 pamphlets and periodicals, and our museum contains some 500 specimens of various articles of interest to the agriculturist, and a collection of 160 specimens of the birds of our county, tastefully prepared by Mr. Haight, a self-taught taxidermist of East Homer, Cortland county, and mounted in cases convenient for exhibition.

It has not been the policy of the club to hold exhibitions, as that might in some respect interfere with the Tompkins county agricultural society, which we have aimed to co-operate with, to the extent of our ability, in promoting the agricultural interest of the county.

Though farmers are proverbially slow in the introduction of new ideas and new practices in their modes of farming, we are gratified in being able to report a visible and decided increase in agricultural improvements in all sections of the county, and flatter ourselves that the club has contributed in at least a small degree in awakening this interest and impelling it forward to practical results.

We are looking forward hopefully to the operation of the law of last session for the collection of agricultural statistics throughout the State, and cannot doubt that the agricultural interests of the State will be greatly benefitted by the information thus obtained, if the law is faithfully executed, and as its

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execution will depend to a great extent upon the active co-operation of the various agricultural societies of the State, we take pleasure in embracing the present opportunity to pledge the earnest co-operation of the Ithaca Farmers' Club in carrying that law into effect.

Respectfully,

EZRA CORNELL, *President.*

REPORT OF THE IROQUOIS AGRICULTURAL SOCIETY.

This society was organized and established among the Indians commonly known as The Six Nations of New York. By the provision in the constitution of the society, every Indian of Iroquois lineage, and their wives and children, are entitled to all the rights and benefits of the society. It may hold its annual fair and exhibition at any Indian reservation in the State, the arrangement being analogous to the principle that governs the New York State Agricultural Society. It is intended that all of the Iroquois Nations shall be brought within its scope.

The establishment of an agricultural society among the New York Indians, had been for a long time discussed in private circles of such of our people who had really the best interest of the Indians at heart. Occasionally the subject was hinted at, in the presence of the older and experienced men. The subject found no favor among the majority of the principal men, who, for the last quarter of a century, had wielded political sway, and had earned for themselves either distinction for their eloquence, wisdom and patriotism, or disgrace and infamy for their treachery. The former class were contented with the honors they had acquired in the defence of the rights of their people, and believed that they had performed all that duty required, and were not ambitious to open new fields for usefulness; while the latter class were content with the stigma that still lingers over the memories of the past, and fearful lest, should they embark in this new enterprise, their motives might be questioned.

To the generation which preceded us, it seemed that "the old way was the best," and that there was no necessity for efforts in the direction of promoting agriculture among our people.

The principal argument against the organization of such a society was, that it was too vast an undertaking, and that our resources were not adequate to the emergency; that it was an

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innovation which would be unpopular, a sudden transition which will insure its failure. Finding that the older men would not be persuaded to aid the good work, by their influence and means, and by words of encouragement, the indomitable spirit of a later generation, which well knew our present wants, determined to push forward, without the aid and influence of *old fogyism*.

Accordingly, an agricultural meeting was announced to be held on the Cattaraugus Indian reservation on the 12th of December, 1859. The meeting was held, in pursuance of the call, and duly organized. The resolutions recommending the organization of an agricultural society and the appointment of a committee to draft and report a constitution, were adopted.

The committee was composed of Dr. Peter Wilson, Nicholson H. Parker and John Hudson. The meeting adjourned, subject to the call of the aforesaid committee. The committee, earnest in their efforts to establish an agricultural society among their people, entered with great assiduity upon the discharge of the new duties imposed on them, and were not long in preparing and framing a constitution adapted to the wants of the people.

Accordingly the committee convened the second agricultural meeting on the 15th day of December, 1859, at which meeting the committee reported the result of their joint labors, and the constitution, as reported by them, was adopted without amendments.

The committee hereinbefore mentioned, in examining the statutes of this State in relation to agricultural societies, discovered that, under the laws, the Iroquois Agricultural Society can have no legal existence. The statute authorizes and empowers only "citizens of this State and of the United States" to form and organize agricultural societies. And the Indians, the aboriginal Americans, are not, by the constitution or laws, recognized as citizens of this State or of the United States; therefore we cannot be legally an organized society, under a strict construction of law. Knowing this legal disability, we applied to the Legislature of 1860 for an act of incorporation, by which the society could acquire a legal existence and its rights be duly protected by law.

The representative from the 4th Assembly district of Erie county, Col. Jos. H. Plumb, had the case in charge, and in due time a bill was reported in the Assembly, but failed to pass. Our

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friend, however, succeeded in obtaining an appropriation of two hundred and fifty dollars for the benefit of the society.

The first annual fair and exhibition of this society was held on the Cattaraugus Reservation, in the county of Erie, on the 23d and 24th days of October, 1860.

There were 284 entries, of all classes, for exhibition and competition. The exhibition of cereals cannot be surpassed, if equalled. The exhibition of Indian corn (Zea maize) was greater in variety than at any other exhibition we ever attended.

The exhibition of vegetables, of stock, manufactures, agricultural implements, needle-work, fruit, preserved fruit, fine arts and poultry, as also of trials of draft teams and plowing matches, would compare favorably with exhibitions of a similar nature among our white neighbors.

The amount of premiums paid by the society at its first annual fair was $243.55, being $6.45 less than the amount of the State appropriation. The society received, for members' tickets and admission fees, $77.30. Also the sum of $16.00 for annual and life memberships, making the income of the society, for 1860, the sum of $343.30. Deducting the sums paid for premiums $243.55, and expenses for police and other incidentals, $25.06, leaves a balance in the hands of the treasurer of $74.69.

The society held its second annual fair on the aforesaid reservation on the 23d, 24th and 25th days of September, 1861.

There were 392 entries of all classes, making an excess of entries, over that of the last exhibition, of 108, thereby exhibiting increasing interest in agricultural matters among our people. I need not add that this exhibition was a success.

The income of the society for 1861 is as follows:

Amount received for members' tickets, admission fees and licenses to pedlars and hucksters	$120 00
Balance on hand of last year	74 69
State appropriation	250 00
Total	$444 69

Cr. by amount paid for premiums	$276 42
Police and incidental expenses	93 80
Balance on hand	74 47
	$444 69

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The excess of premiums paid in 1861, over that of last year, $32.87. The State appropriation for 1861, $250.00 Amount of premiums paid by the Society for the same year, $276.42, making excess paid for premiums, over that of the State appropriation, $26.42.

The society has received from the State:

For the year 1860	$250 00
For the year 1861	250 00
Total	$500 00

Amount paid by the society for premiums:

For the year 1860	$243 55
For the year 1861	276 42
Total	$519 97

Excess of premiums paid by the society, over the sum of State appropriations, $19.97.

It may be superfluous for me to say that the society has succeeded beyond the expectations of its most sanguine friends and promoters. A new avenue for emulation and competition has been opened to the red man, and a new era has dawned upon his history. To direct his attention to the mother earth, in cultivating the soil and developing its rich treasures, which so well repay the labors of the industrious and frugal husbandman, has been for a long time a *desideratum* with those that have an earnest wish for the civilization and reclamation of the Indian.

The State Legislatures have overlooked this most important fact, that agriculture is civilizing in its tendencies; at least it so appears to me, judging from the past history of its dealings with our race. When a bounty is offered to the red man, for the products of his industry, he assiduously sets himself to work to gain the prize and its honors; and these are the results: he is paid for his success, and his love for agriculture is also promoted, and the benefit also extends to his less successful competitors, who, though unsuccessful, are incited to more vigorous efforts.

I cannot close this report without referring to a subject which has agitated the minds of those that desire the general improvement of their race: The incorporation of an institution with university powers among our people, for the promotion of science,

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arts and agriculture, the three graces that adorn civilized life. By a judicious management an institution of this kind, upon one of the Reservations owned by the Iroquois Indians in this State, would redound to their benefit. There are now thousands of acres of land, of waste land, unoccupied by any individual, which can be brought to use for this great object. An institution, wherein the science of agriculture could be taught, can be successful among these Indians, though the experiment may fail among the people of the State of New York. But I do not intend to discuss this question at this time, and merely revert to it for the grave consideration of those who have the ability to aid, energy to promote the cause, and talents to secure the end.

Herewith the treasurer's account is presented.

All of which is most respectfully submitted.

PETER WILSON,
Sec'y of the Iroquois Agricultural Society.

VERSAILLES, N. Y., *March* 31, 1862.

HENRY SILVERHEELS, *Treasurer, in account with the Iroquois Agricultural Society.*

1860.			
Oct. 25.	To amount received for members' tickets		$40 00
	do do admission fees		37 30
26.	To amount received for annual members		6 00
	do do one life member		10 00
	To amount of State appropriation		250 00
			$343 30
Nov. 17.	By amount paid for nails		$2 13
	do do printing and stationery		11 68
	do do police		11 25
	do do premiums		243 55
	By amount on hand, carried forward		74 69
			$343 30
1860.			
Oct. 25.	To amount brought forward		$74 69
1861.			
Sept. 26.	To amount received for members' tickets, admission fees and license to pedlars		120 00
	To amount received from State		250 00
			$444 69

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Sept. 26. By amount paid for books and stationery		$5 00
do paid for lease of grounds for holding the fair		10 75
By amount paid printer's bill		24 50
do police three days and two nights		34 00
do for preparing ground and buildings		18 05
do for premiums		276 42
1862.		
Mar. 31. By amount of express charges for transportation of books presented to the society by the Secretary of State		1 50
To amount on hand		74 47
		$444 69

LEBANON AGRICULTURAL SOCIETY, MADISON COUNTY.

In again complying with the requirements of the act under which the Lebanon Agricultural Society was incorporated, it is fitting that its officers should acknowledge the blessings of a beneficent Providence during another year; that notwithstanding the most foul, deliberate and extensive rebellion ever waged by tyrant traitors against—if not a perfect, yet the best government the world ever saw, calling forth the latent energies of a quiet people not used to the barbarisms of war, but delighting in the peaceful pursuits of agriculture and the fine arts, the husbandman has been enabled to till the soil, and garner from its rich bosom an abundance for the wants of man and beast, besides meeting the wants of patriot volunteers, and a loyal government, they have hastened to support. In consequence of the deep interest taken by all classes in the crisis of our country, it was at first deemed inexpedient to have any public exhibition during the past autumn, but at a late hour it was determined otherwise; and in consequence of its being free of charge, and also our usual misfortune of inclement weather, our cash receipts were very light, being derived solely from the admission fee of competitors; yet it was conceded by all that we had a good exhibition, a good attendance of visitors, a highly practical and loyal address from the Hon. Orrin B. Lord, dealing masterly blows against the rebellion, its cause and abettors.

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The executive committee feel justly proud of the object of their labors, it being no less an object than to "improve the soil and the mind," and feel safe in assuring the Society that they may, with confidence, count on the presence, sympathy and co-operation of all classes in the community, in all laudable efforts to promote the interests of agriculture, horticulture, and the domestic arts. ALFRED SEYMOUR, *Secretary.*

LODI.

LODI, *March* 7, 1862.

B. P. JOHNSON, *Secretary N. Y. State Agricultural Society:*

Dear Sir—In furnishing you with our annual report, it gives us pleasure to state that our society continues to be in a prosperous condition. In consequence of the disturbed condition of the country, (the war) the board of directors of our society thought it best not to hold their fall exhibition. Our fair for the sale and exhibition of stock, farm implements, &c., held June 12, 1861, resulted profitably to the society and advantageously to the farmer. We had an elegant display of stock, particularly horses, also carriages, single and double harness, plows of various sorts, combined reapers and mowers, six different kinds, all of which were set at work in a field of clover on the day after the fair, and each appeared to do good work. Several were sold as a result of this trial, two of Manning's, two of Hussey's, and some others. We also held upon the same day of our stock fair, a floral exhibition, the directors having set apart a sum of money for this purpose. Last year we commenced collecting a library; the whole number of volumes in the possession of the society is about sixty; we have received from the State Agricultural Society ten volumes, being Transactions of the American Institute. From the U. S. Patent Office we have been furnished with the Agricultural Reports of that department, and a number of packages of seeds which have been distributed among members and others, with the understanding that experiments should be made with them to test their merits in this locality, with a view of benefiting the whole community.

Owing to the fact that the treasurer is unexpectedly absent from home, we cannot give you the number of members nor the amount of expenses as they occurred. We repaired the enclosure to the

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grounds, enlarged, regraded and improved the track, whitewashed the fence, office, &c., which, with printing and police expenses, cost about $80. The balance over and above expenses at present in the hands of the treasurer, is $53.43.

Yours, respectfully,

JAMES VAN HORNE, *Secretary.*

ROSENDALE, ULSTER COUNTY.

To the Secretary of New York State Ag. Society:

DEAR SIR—The accompanying report covers the doings, transactions and condition of the Rosendale agricultural society to the date thereof, as nearly correct as possible for us now to give it; and we are quite certain that very little if any variation would be the result of the most rigid examination; if any, it would occur in the relative sums set apart as the total for boards, lumber, &c., and labor.

Owing to the unfavorable condition of affairs of the country, affecting the business and feelings of the people, we did not feel justified in creating a greater amount of debt for the purpose of fully preparing ourselves this year for holding a general agricultural, horticultural and mechanical exhibition, and as our ground was enclosed and suitably prepared for a horse show, we decided to have an exhibition of horses, as an introduction, and it was, under the circumstances, very successful and satisfactory.

We intend, the next year, to be fully prepared for a general agricultural exhibition.

People from several adjoining towns have requested us to so manage or amend our organization as to embrace their respective towns, and make our society a union agricultural society; we feel disposed to do so; how is this to be accomplished?

We believe agricultural societies, properly organized, making proper reports, are entitled to an appropriation; but not being fully posted just now, we do not know whether we are in proper shape to receive such appropriation or not. Any information you may feel disposed to give us, under this or any other head that may be of service to us, will be thankfully received.

Please answer us on these points—find enclosed stamp to pay postage of answer.

Very respectfully yours, &c.,

ISRAEL SNYDER.

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VERNON.

Hon. B. P. JOHNSON,

Sec'y of N. Y. S. Agricultural Society:

The Vernon agricultural society, although one of the first town organizations in the State, and having proved its usefulness and ability to develop the resources of the industrial interests of the town, has not, I regret to say, held its annual exhibition the past year—partially on account of the war excitement, but more particularly the cause, the very sudden and unexpected death of our worthy president, T. B. White, Esq., just previous to the time of holding the annual fair. Mr. White was extensively and favorably known throughout the State, as being formerly of the firm of White & Douglass, produce commission merchants in the city of New York. The deceased was a man very highly respected; his impulses were generous and noble, and his evident desire to improve and elevate.

Officers for the ensuing year.—Josiah Case, President; Henry Wilson, vice-president; Everett Case, treasurer; Levi T. Marshall, secretary; Sidney A. Bunce, E. Webber Williams, Barnes Davis, Rich. Barnes, Walter S. Todd, Morris Cushman, executive com'e.

Respectfully submitted,

L. T. MARSHALL, *Secretary.*

VIENNA, ONEIDA COUNTY.

Hon. B. P. JOHNSON,

Secretary of N. Y. State Ag. Society:

The report of the Vienna town agricultural society for 1861, sets forth as follows:

The society has now been in successful operation for three years. It has held a fair in September of each year on grounds leased by it in the village of North Bay, at a yearly rent of $15; the lease does not expire until after the time to hold the next annual fair.

Monthly meetings are held on the first Saturday evening, at which subjects interesting to farmers are discussed by the members and all others who are present. This we have found highly beneficial in more ways than one—in the large amount of useful practical knowledge evolved, suggestions offered, and in the increased interest given to the society, as shown in attendance upon the meetings, and preparations for and attendance at the

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fair. The interest of these meetings is also heightened by the attendance of the Glee Club, which has prepared a large amount of interesting and appropriate songs for these occasions.

The society has been very fortunate so far, in keeping itself free from any internal dissensions which so much mar the interest and usefulness of so many similar societies.

The receipts of this fair were	$274 00
The expenses, including premiums paid and due	242 06
Balance	$31 94

We may add, that we hold a farmers' festival in the winter, which has tended much to increase the interest and attention of this society.

Enclosed will be found slips cut from some of the county papers, prepared by the editors of those papers, who were in attendance during the last day of the fair.

A. W. KELLOGG, *Secretary.*

AGRICULTURAL FESTIVAL AT VIENNA.

INTERESTING ADDRESS BY EX-GOVERNOR SEYMOUR.

The Vienna Agricultural Society held its annual festival on Wednesday evening last. Snow fell abundantly during the evening, but failed to put a damper on the ardent energy and enthusiasm which have made the Vienna Society to take precedence of every other similar organization. Not only from all parts of the town, but from every quarter of the county, visitors arrived. The street fronting Frisbie's hotel was lined with cutters, and the stables and sheds crowded with horses. From early dusk until ordinary bed time, guests poured in, and the constant cry was "still they come."

Under such circumstances, supper was a serious business. The dining room was filled at the appointed hour, and scarcely any diminution of the hungry waiting assemblage was perceptible. Again and again the room was emptied, and the table cleared and relaid, and the room again filled; and still long ranks of waiting hungerers lined the corridors of the hotel. Not until after more than 300 had supped, and the balance concluded to wait until breakfast time, was the eating part of the business disposed of. Where Frisbie got all the provisions from to feed so many mouths

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is a marvel. But his viands, like the widow's cruise of oil, seemed miraculously to hold out. It was no rough farmer's supper, with huge mountains of meat and vegetables, washed down with copious libations and desserted by the fragrant weed. For the ladies were there, in all their loveliness and vivacity, gilding with mild radiance the otherwise commonplace gastronomic and elocutionary performance, and offering to the impatient a reward for the inevitable delays and prolongation of the more serious exercises in the shape of the saltatory amusement thereafter.

After supper, the company all assembled in the ball room of the hotel, where Dr. H. Nicholas, president of the society, took the chair, and commenced the proceedings by calling on the glee club for a song. The club consists of Mr. Loomis, Mr. Wise, Mrs. Wise, Miss Graham, and Miss Johnson. They complied with the president's request, after which the secretary, Mr. A. W. Kellogg, read a letter from B. P. Johnson, Esq., and one from Hon. John F. Seymour, apologizing for inability to attend. The president then announced that Hon. Horatio Seymour was present and would address the meeting. The announcement was received with loud applause.

SPEECH OF EX-GOVERNOR SEYMOUR.

Governor Seymour arose and spoke substantially as follows:

We meet this evening, fellow citizens, on an occasion of national interest—the anniversary of one of those victories of our country which have been wont heretofore to stir the American blood—one of those anniversaries which, when heretofore celebrated, has not been marred, as it is now, by the reflection that on the very spot where once a victory was won, and the flag of our country waved in triumph over the scene of a battle with a foreign foe, there is now a mad rebellion against the stars and stripes, representing the dignity and character of this our land. We meet also on an occasion which is designed more particularly perhaps to call your attention to the great value of our country's principal pursuit. At such a time as this, mingled with the recollections of the past military history of our country, there comes to each mind, doubtless, the reflection that so many of our fellow citizens have left their homes and gone to yonder battle field, and are struggling once again, not against a foreign foe, but against rebellion in our own land, for the purpose of maintaining those institutions under which our country has been so great and so

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prosperous. Honor then to the men who have gladly and cheerfully gone forth for the purpose of periling their lives in the support of our country's honor. But they are not the only ones who are struggling now to uphold our country's honor and our country's interests. There are men who strike blows for their country as glorious as those which fall from the armed hand of the soldier. I refer to such blows as those of strong-armed labor, when it fells the mighty forests of our country, to subdue them to men's purposes and wants. It is not enough to sustain our country in this hour of peril, that men should go armed to the conflict, risking their lives. It is necessary also that there should be successful toil, to sustain these great armies; that there should be wise, well directed industry in order that the financial wants of our country shall be provided for at this time.

Therefore I am happy to accept the invitation of your society, to bear my testimony to the respect which I feel for all those who are engaged in agricultural pursuits. At this time agriculture has a peculiar interest, in reference to the condition of our country. If agriculture fails, in vain the warrior fights or the statesman schemes to maintain the honor of the country. In all the struggles of nationalities, we are brought back to the starting point—Is there the industry and skill in this land, to wring from this mother earth of ours the material to sustain us in this struggle?

At the present time I am particularly impressed with the greatness of this interest, for I have recently returned from a tour over a large portion of the States. I spent some seven or eight months in the great West. I went as far north as I could get, and as far south as they would let me go. In traveling over that region, I found much to employ my mind and a great deal to interest me. Wherever I went I found citizens of Oneida county—our own old neighbors, who had left us years ago to seek out new homes. I returned, deeply impressed with serious considerations, some of which affect the farmers of Oneida county.

We have, owing to the condition of our country and the new competition which we are to meet from the great fertile plains of the West, new duties set before us. If we are to succeed hereafter, we have got not only to be a working but a thinking people. We farmers have got to maintain ourselves successfully under the new burdens growing out of the deranged circumstances of the country. I say *we*, for I claim to be a farmer myself; I carry

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on one or two farms. And in addition to the burdens which war will impose on us, we have some new problems presented. How can we make our farms sustain us as they have heretofore done, give us all the comforts we have enjoyed, and those luxuries to which we are accustomed? For now we find ourselves not only burdened, but pressed by the competition of the friends whom we have sent out to the great plains of the West. How can we maintain ourselves against this competition? This is a practical question, which comes home to each one of us, affecting our families, our fortunes, our well-being. Whoever has traveled over the plains of our western States, must have been astonished at their unbounded fertility, and the ease with which many important agricultural staples are produced. In the Old World there has been a copartnership always recognized between war, pestilence, and famine. All three go together. In the crowded countries of Europe it has been ever found that when a nation is engaged in war, and is maintaining large armies in the field, the withdrawal of men from agricultural pursuits, and placing them in the ranks of the military, has resulted in a diminished and insufficient supply of food, and in consequence of the disturbed condition of things pestilence has followed. For the first time this rule has not held good. Although there are assembled in these States as great armies as the world has ever seen—although we are supplying destitute nations with food, we still have overflowing granaries. Though we ought, according to the analogy of history, to have empty granaries, we are burning corn for fuel in Iowa and Illinois. Corn can be purchased in those States, and some other parts of the West, for twelve cents a bushel, and but for the high prices of transportation on the lakes and canals, the farmers of Oneida county would have suffered from the competition of the west to such a degree that the leading article of Indian corn would have hardly yielded to us the price of its production. Indian corn can be produced in Illinois and Iowa and delivered here at forty to forty-five cents per bushel, and we cannot produce it here at less than fifty cents, to cover all our expenses. The same comparison is true in regard to meat. They can produce beef and pork lower than we, because of their cheapness of food; and we shall be driven from the competition except where we have special local markets, or when we produce these articles as mere incidents to our ordinary pursuits. How are our farmers to meet this competition? I confess,

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while I traveled mile after mile over the vast prairies, along the almost interminable length of their rivers and railroads, I felt for the first time as no man can feel unless he sees that mighty region of the West, what are its almost fabulous powers of production, its vigorous population, and how much mechanism has helped them to develop the resources of their soil. To a far greater degree than we, they can apply mechanism to the production of their crops. Regarding these things, I felt greatly concerned lest all our material interests must go down before their competition.

Yet closer investigation convinced me that if the farmers of Oneida county were true to themselves, and became as intelligent as they must be if they would maintain themselves—we had still a bright career of agricultural prosperity before us. Nature, after all, is impartial. If she has given the West vast fertile plains, producing almost spontaneously what we bring from the earth with care and pains and toil—she has given some compensating advantages on our side. They can raise corn, beef, and pork, cheaper than we. But the very consideration that gives them these advantages—these great fertile plains—has some features which give us the advantage in other respects. They are not blessed with our green pasturage, that makes the surface of our lands so pleasant to look upon all the season through. Nor have they the hills—those regulators of moisture—which I never understood the value of, until I saw that the prairies cannot have the regularity of season which we enjoy. Since my return, as I looked out upon the Deerfield hills, I view them with a feeling not only of admiration for their beauty, but almost of reverence, since I have come back to them from the coutinuous expanse of the West. Nor has the West those gushing streams that pour down our hill sides. Therefore they cannot produce many of the articles which we produce. We have to acquire a higher degree of skill, more particularly in the productions of the dairy. Not having the fertile soil of the West, we can yet make butter and cheese cheaper and better than they; and this for the reasons I have mentioned. Besides, we have a home market for the coarser productions of the farm—the potato and other plants. If the farmers all over the county will do as I rejoice to see you do here—meet in clubs, discuss matters, and become intelligent in all that you need to learn—the course of commerce throughout the world—what you may hope to sell

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abroad—and what you can find a market for here—you may find that the competition which at first view seems so formidable and destructive, is one which will ultimately contribute to your own prosperity, inasmuch as it contributes to the prosperity of this land of ours. But in order to do this, we have got to go to work, and not only cultivate farms and cattle, but to cultivate ourselves.

It was a very good suggestion in one of the agricultural papers, to give a premium to the best farmer, intellectually—to the best educated man. There has been in past years a prejudice against "book farming." That is fair enough. The man who has only learned farming scientifically, is not a good farmer. We must combine the two—intelligence with practical skill and application. Such a man is infinitely superior to that farmer who does not possess an intelligent and well cultivated understanding in regard to what deeply concerns him.

There are some few things in the history of our State which have fallen under my observation, to which it may be well to call your attention, and which show the practical advantage of some pursuits which our farmers are apt to think of little interest to them. I do not say that every farmer should be a chemist. It would be very well if he could, but he has not the time.

A farmer need not be skilled in all the abstruse investigations of geology; but you need to seize hold of the results of the knowledge acquired in the laboratory, and in the study of the geologist, and apply them to your pursuits.

Some years ago, the most intelligent man, in some respects, that our county ever produced—the late Henry Huntington, of Rome, whom the older portion of you will remember for his great ability and general good sense—was employed to visit western New York—the district embracing Rochester, Buffalo, and Geneva—and report whether it was worth while to buy it at some very low price, 50 cents an acre, I believe. He went over that region of country. He had not the opportunity which we have now, of judging of the fertility of the soil from the geological indications of the country. He went all over the tract and returned and reported that the whole of it was so low and swampy as to be valueless, and dissuaded the company from the purchase. Yet we now know that a more valuable and productive country does not exist. We had men who desired to become the owners of large landed possessions, and made the first selections, with all

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the continent before them. What was the choice these men made; men of sagacity, who had been successful beyond measure in their business pursuits? These men bought the wilds and wilderness of John Brown's tract, which to-day is as wild as it was a hundred years ago. I do not mention this to reproach the men of the past, but to instil a useful lesson for ourselves. These men saw that that region was geographically nearer to the markets, that it was covered with vast forests, and showed all the signs of a good soil.

And here let me say a word in regard to "the signs of a good soil." I have observed that every man looks for the signs which he has been accustomed to in the locality he came from. Thus, if a man comes from a country where pines grow on barren soil, he will conclude that the soil is barren where pines grow. At an early day our farmers were prone to be governed by these signs in coming to a new country. The men who bought John Brown's tract paid out for their land sums of money which the accumulated interest until now would swell to something fabulous. John Brown himself was a very intelligent man; was the founder of Brown University, in the State of Rhode Island, and possessed the highest skill in business matters. He afterwards sold this land for a nominal sum—two shillings, I believe—per acre. On making the computation of what it had cost him, he found that it amounted, with interest, to more than a million of dollars. I cite this case to show how mistaken intelligent men have been as to the signs of good land.

If any of you have been in the county of Lewis, passing north from Utica, you will see land which is among the richest and most beautiful to be found anywhere, dotted with farm houses, displaying every evidence of prosperity and luxury on the part of the owners. The Lewis county farmers have some of the best farms in the State, and always carry off prizes at the State agricultural fairs. As you travel along the course of the Black river, you can stand on land which for many years has sold at from $30 to $40 and $50 an acre; and throw a stone across the river on to land which is never worth over $5 per acre. Yet the latter was first settled. The first settlers chose the east side of the river because it was the nearest to the market. Those who settled on the west side did so because they had no option. The men who bought land on the east side lost their money; those on the other side were able to transmit large fortunes to their pos-

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terity. If these men had known then what any man can learn now by one day's attention to geology, they might have foreseen this result exactly. The Black river runs for 60 or 70 miles along a valley made by the overlapping of one stratum of rock over another. On the one side it is an igneous rock which disintegrates into sand, making a poor, arid soil. On the other side of the Black river, the subsoil is limestone, which makes a warm, rich, productive soil. That general knowledge of geology, which all men can now acquire without burdening themselves with abstruse learning, or diverting themselves from their business pursuits, would have saved the one class of settlers from poverty and made them rich men.

Farming is not now a bare struggle for existence, as it was when some of my old friends began life. We have gone on from this, until, as a people, we enjoy a degree of wealth unknown elsewhere, and have acquired habits of luxury which we cannot give up, but which farmers in other lands do not aspire to. We cannot give up these ameliorations of life, which make up so much of our domestic comfort and happiness. It is always man's duty to toil on, that woman shall be glorious in her loveliness. Now, in order for a man to maintain himself in this day as an agriculturist, he must know not only something of the materials that make up fertility, but of the circumstances which influence the commerce of the world. It was quite accidentally discovered that we could make cheese in this country cheaper than in England, and now to-day most of the farmers of this county are engaged in this most profitable pursuit. For myself, I am not only a farmer, but a farmer with a specialty—I make cheese for England. That country makes a demand for a peculiar sort of cheese. It must be of such a size, of such a form, and of such characteristics. We need to have knowledge of the peculiar taste of our customers, to be able to meet the precise demand for our productions. These hints which I am giving you might be greatly extended, and would occupy more time than you can spare on this festive occasion. I shall seek to come here at some other time and give you my views more fully in relation to the class of knowledge which our farmers require in order to farm with profit to themselves.

Without dwelling on this subject, at which I have only glanced, I will say that I am most happy to have come here, with some neighbors of mine, in order to give evidence of my respect and

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regard for, and high sense of the value of, that class of men who have begun to cultivate their farms in the right direction, that is, by cultivating themselves—seeking to get that measure of intelligence which is so necessary to the proper exercise of their honorable profession. A man without learning cannot cope with a man of learning, all other things being equal. "Knowledge is power," is as true on the farm as on the battle field, or in the halls of legislation. The man of practical skill may be more successful than the mere theorist. But that is not the fair presentation of the case. You must combine the two. Let no man delude himself with the idea that he can be a successful man merely by toil, unless that toil is wisely and well directed. This is true in every department of life. My friend on the left, Mr. Campbell, of New York Mills, employs a vast number of laborers, whose production gives an impulse to the material prosperity of our county. It is not that he and his associates toil more than other men, but that they have thought more than others, which enables them to contribute so largely to the sum total of our production. They have subdued the Sauquoit river, made it leap from its bed in the morning, labor for their ends all day, and at evening suffer it to glide back to its rest. By availing themselves of the power of knowledge they have built up an establishment which is a matter of pride to us all. Visit it, and it will almost startle you with the idea that machinery *thinks;* and you will see that nature has been compelled to work in the employ of man.

One other suggestion, and I have done. This world of ours, on whose surface we walk every day, does it look alike to us all? He who knows something of geology, of the history of the earth, when he looks down to the earth beneath him, or onward to the swelling hills, knows, or may know, the history of that which he beholds. He may read and know of the time when the earth was nothing but a strange and wonderful creation, whose past history he has studied, and found replete with interests other than mere economical considerations. Do you think that the man who looks above him, who knows nothing of astronomy, who sees the stars merely as shining points in the heavens, sees as much as he who knows that they are mighty worlds, whirling in obedience to eternal laws through the immensity of space? Do these two men live in the same world? He who knows nothing of botany, and is ignorant of the laws of vegetable growth, does

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he live in the same world with the man who, when he looks on the forest, understands all the wonderful processes which are going on throughout nature, and by which the bud puts forth its flowers, and the tree yields its fruit? Is the student of nature in the same world with the man who sees no further than the outside appearance of things?

Man's duty is to make his home pleasant and beautiful. It is for this we hang pictures on our walls, and call in the skill of the sculptor and artisan to surround us with ornaments that will beautify and adorn our homes with all that is attractive and gratifying to the senses. If this is well, is it not well that we should gain for ourselves the intelligence respecting this fair world of ours, which alone can adorn the mind? If we take such pains to adorn the walls of our habitations, is it not also well to learn that which will make the earth on which we stand, and the heavens above us, yield to us those beautiful revelations which never gladden the senses of an ignorant man. The adornment of the homes in which we live is not within the reach of all. Wealth is denied to some; misfortune may overtake the most industrious and cultivated. But the luxuries and enjoyments of the mind are measurably within the reach of every one. The creations of art may not be within our means to procure; but the beautiful creations which intelligence gives us are within the reach of all.

"Every farmer may not become President, but it is a fact that every President becomes a farmer." I believe that saying is true, for I have taken some pains to inquire, and I have been surprised to find that so many men who know a great deal of books, think it worth while also to know something of farming.

I exhort your society to go on with its work, not only for the sake of yourselves, but of the county in which you are setting an example to other towns, of a spirited agricultural society. Don't be afraid or discouraged, fancying that your discussions do not tend to anything. You are acquiring habits of investigation, which will store your minds with facts, and make you masters of the knowledge bearing on your business.

The late Ambrose Spencer had wielded more political power in the State of New York than any man who lived within its limits. For twenty years that man was almost despotic. His huge frame, strongly marked features, and indomitable will, corresponded with his position. At the time to which I allude, his

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influence and power had passed away. He was an old man, in the decay of life. I asked him what interest he then felt—in what he employed his mind? I was anxious to know what could occupy the mind of a man whose career had been so stormy, so vigorous, so important, so valuable as his own. He said he was entirely engrossed with his farming pursuits, and that he witnessed the processes of nature which they unfolded, with the liveliest pleasure.

I saw Chancellor Kent, then at the age of 80, almost at the same period. He was a mild, studious and intellectual man, prominent as the other, but of very different type. Both of these old men I found at the close of life engaged in the same pursuits, and full of zeal and pleasure in agricultural occupations at an age when some farmers are tired of them. These men had cultivated their minds, and they looked on farming pursuits intelligently.

Every wise man will lay up provision for his old age—not alone in wealth which may be all idle and useless to him. Let us lay up, not only that preparation for another world which every man should make—but that which grows out of a cultivated mind. Taste outlives the intellect. I have in my mind at this moment one of the most beautiful and touching illustrations of that fact that could well be presented. My own mother, when her intellect was gone, and her mind all ajar and astray, preserved all the love of nature which she had acquired in the morning of her existence. Next door to us lived a young man, stricken down and rendered helpless by disease. Often have I looked out into the adjoining gardens, and seen the old woman, my mother, in the last stages of life, making herself happy with a taste that had outlived her intellect; and also the young man stricken down in his strength, happy and cheerful, because at the right time he had cultivated his taste, and had the unfailing resource of agricultural occupation.

Take care, then, that you be not only farmers, but cultivated, intelligent farmers, valuing agricultural pursuits for their own sake as well as for the profit they bring. If so, you will find that though misfortune overtake you and the fruits of your toil be swept away, you will at least have a possession, in your cultivated taste, which may outlive your intellect, and make your old age happy.

At the conclusion of his address, as well as during its progress, the speaker was warmly applauded.

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The president then read off the following toasts, mentioning in each case the individual, if any, whom he desired should respond:

1. The President of the United States.

2. The Governor of the State of New York.

3. The day we celebrate—the man of sterling worth and noble deeds—May the spirit of the American people be as determined and decisive now, as at the battle of New Orleans.

Mr. Fifield, of Camden, responded. He complimented the farmers of Vienna on their enterprise, and trusted they would succeed as thoroughly as Gen. Jackson did on the anniversary of this day at New Orleans.

4. The Union of the States, a bond of brotherhood more enduring than brass, more jealous than royal prerogative.

Mr. J. W. Graves, of Vienna, made a neat and fluent reply, enlarging on the inseparability of liberty and union, and showing that if our Union fell, there was no hope of the preservation of the rights of the people to govern themselves.

5. Our parent societies, County, State and National—May their offspring be as numerous as the sands of the sea.

Mr. Mattoon, as an ex-president of the county society, was called on to respond. He briefly sketched the origin of the county and State societies, and the progress and improvement in agricultural processes and implements which had since then taken place, and which he attributed to the competition engendered among the farmers by the operations of such societies. In allusion to the State Society, he mentioned that Oneida county had been honored by giving no less than four of the twenty-one Presidents—Messrs. B. N. Huntington, B. P. Johnson, T. S. Faxton, and Henry Wager.

6. The farmer—the pride and wealth of our country—the foot ball of no man.

Mr. Aaron Bushnell was requested to respond, and did so in a very amusing and appropriate style. We have not space to report this, nor indeed any of the speeches, as fully as we wish. Suffice it to say, Mr. B. took off his coat and went into his subject vigorously, giving the farmers and their sons and daughters some very useful advice, which the young folks took in good part, and it is to be hoped will put in practice.

7. The law—rightly adjudicated, the palladium of our rights; "An honest lawyer not a legal fiction."

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Mr. A. H. Tremain, of Albany, responded in the spirit of the sentiment, showing the dependence of individual safety and property upon a well administered system of public law—that only where law was supreme, was freedom possible, or rights secure; and that whenever law was overruled or trampled on, anarchy must ensue, and civilization retrograde.

8. Fruit culture—the dream of poets, the sweetening of all life—the love of the wise and delight of the great.

The indefatigable secretary, Mr. Kellogg, was called on to reply. He evaded the demand for a speech, by reading an appropriate poem from his scrap book.

9. The Press—The penny preacher, the storehouse of knowledge. A *Herald* of glad tidings, a sleepless *Sentinel*, a *Citizen* not traitorous, a *Freeman* not bought with a price, the observer of all *Observers*.

The "sleepless SENTINEL" alone being at his post, duly acknowledged the compliment.

10. The manufacturing and commercial interests of Vienna—not to be underrated because run into the ground.

Mr. F. H. Conant, of Camden, responded. He spoke of his leaving the old Bay State to come to this vicinity, which was then regarded as the "far west." It took him six days to make the journey. The country was then comparatively a wilderness, and the first business was to clear the land of its heavy timber. For a considerable time the saw mills produced a superior quality of pine lumber. In the winter of 1837–8, the mills produced 4,000,000 feet of lumber, but the price at that time was so low that the article was not very remunerative. The manufacturing interests had in some respects improved, and in others declined, but the agricultural interests, which were of far more importance, had been taken hold of with an energy that rewarded the farmer, and nourished and beautified the surrounding country. There were few places where more improvements had been made than in Vienna. In Camden they claimed to have a larger village, and more manufactories, but they could not get as many fair women and good farmers together as were then present.

11. Vienna against the world.

Rev. J. S. Houghton, in responding, said, the first evening they organized, one or two men came and said, "We can't do anything; we ain't agriculturers, and shall only be laughed at." Robert Lawson replied—"Vienna against the world?" and that

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became the motto of the society. The child of Alexander ruled the mother, the mother ruled the father, and the father ruled Greece. Vienna beats the county, the county beats the State, the State is the proudest of the Union, and the Union soon will be "E Omnibus Unum," instead of "E Pluribus Unum," and so Vienna will be top of the whole heap."

12. The ladies, God bless them.

Mr. J. P. Stone, in responding, said the word "women" pleased him better than "ladies." He considered the tendency of the extension of civilization was to make mankind approach nearer to the gentleness of woman.

13. Agricultural and Industrial Associations; beacon lights to their future greatness; may each year add to their numbers and increase their efficiency.

Mr. Osborn, in replying, said one of the strongest inducements for coming into the village to live, was the existence of this society. He attributed the recent improvements here to the enterprising spirit evoked and stimulated by it.

14. The founder of North Bay.

Mr. H. J. Myers, the oldest inhabitant, responded by saying that old as he was, that was the first time he had ever attempted to make a public speech. He recollected when the place was a vast wilderness. Now they were puffed by the papers every week, and he expected before long Governor Seymour would be asking to buy his farm. If the Rome Banks had not been consolidated, they would have been looking for a location in North Bay. He concluded by admonishing his hearers to industry, and showed by his own and the community's advancement, that there would be a sure reward.

Before adjourning, a vote of thanks was rendered to the distinguished strangers who had attended, including Gov. Seymour, Mr. G. Graham, of Oriskany; Samuel Campbell, of New York Mills; John Tubbs, of Verona; F. H. Conant, of Camden; C. Kathern, of Cleveland; A. H. Tremain, of Albany.

After the supper and speeches, the room was soon cleared of tables and superfluous furniture, and the spirited members of the company joined in a merry round of dancing, which was kept up till dawn. The invited guests who did not stay to participate, were taken charge of by members of the society, and that they were hospitably provided for, need scarcely be mentioned.

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VICTORY, CAYUGA COUNTY.

In sending you the official record for publication, perhaps a few facts in regard to the agricultural progress of our town, as connected with the society, might be accepted. Either as the effect of the operations of our society, or of the same enlightened enterprise which inaugurated it, a marked and progressive improvement is visible in the farming operations of the town. A spirit of generous emulation is excited, which powerfully aids the general idea of profit arising from improved farming. Better fences, more neatly made, and *fewer weeds* flanking them, are a common observation. Increasing culture of fruit not only in apple orchards, but small fruits—grapes, berries, &c., together with more ornamental flora-culture, is evident. And especially in the reclamation of swamps and general draining, decided progress is visible.

Improved stock also receive much attention, several of our farmers having taken much pains to infuse better strains of blood into their flocks and herds—stalls, sties and poultry yards—one herd of Devon cattle in particular meriting special notice, Mr. G. B. Lockwood having a herd of pure bloods of his own breeding, their progenitors having been drawn from some of the best herds in the State. Some gentlemen, who are judges of blood stock, and who are accustomed to attending our State fairs, have assured me that, as a whole, Mr. Lockwood's cattle, are equal to any Devon herd in the State. Special mention is also due another of our townsmen, D. L. Halsey, Esq., for his introduction and culture of the Basket or Osier willow, both in nursery and in fence. A hedge planted by him three years since, has fully demonstrated that it grows vigorously, stands our climate, and that by interlacing the branches, the fence is firm and impervious to any stock, for every cut hardens and produces the effect of a thorn. Neither will cattle browse it or mice gnaw the bark, so it lacks no element of a strong cheap fence of indefinite duration and growing better every year. It has also this great economical advantage over every other that it needs no repairs save the yearly clippings, and this, instead of being an expense, is a source of profit equal to any other crop. Especially on our great prairies it must prove invaluable, and our prairie farmers need, I am sure, only to become acquainted with it, to appreciate its precise adaptation to

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their wants. Another evidence of the progress of our farmers is the increased number of agricultural and other papers taken by them each year.

"Those read who never read before
And those who always read, now read the more."

I am, sir, most respectfully yours,

S. HIRAM PLUMB,
Corresponding Secretary.

VIRGIL, CORTLAND COUNTY.

Mr. B. P. JOHNSON:

SIR—I would report concerning the Virgil agricultural society as follows:

Cash received	$130 00
Cash paid in premiums and for expenses	130 00

Our fair, which was held on the 18th, 19th and 20th of Sept. last, was, in most respects, a very good exhibition.

The hall was quite well filled, and was very tastefully decorated. Of fruit, there was much more and of better quality than was expected for last season. Among the many very beautiful articles on exhibition in the hall, were several very fine cases of insects, collected and arranged by persons residing in this vicinity.

A cheese weighing upwards of 500 lbs., of good form and well matured, attracted a great deal of attention. The weather during the last day was very rainy, preventing the large attendance that there would have been, had the weather been good.

The address, by Rev. Mr. McDougall, of Dryden, was exceedingly good—it is seldom excelled by productions on such occasions.

A. MAHAN, *Secretary.*

WILSON AGRICULTURAL SOCIETY.

Hon. B. P. JOHNSON,

Secretary N. Y. State Ag. Society:

The Wilson (town) agricultural society has been, during the last year, in about as flourishing a condition as could be expected, considering the times and the season, so far as the exhibition was concerned. But the main object which the prime movers in organizing this society had in view was professional, mental and social improvement among the agriculturists and mechanics of

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this town. In this, the association has signally failed; for the meetings that have been appointed during the winter season for discussions, essays and addresses on agricultural, mechanical and domestic subjects have not been sustained. The movement seems to have been entirely in advance of the old fogy ideas of the majority of the inhabitants, and I fear will have to be relinquished for the present.

The exhibition was held on the 9th and 10th of October, 1861. The first day was occupied by the show of stock of all kinds, and the second day by everything else included in the premium list. The number of entries was small, but the quality of stock and articles was good, and in many cases superior.

Whole number of premiums offered, 323; amount of money offered in premiums, $206.25; number of premiums granted, 156; amount of money paid in premiums to this date, $89.04; amount of premiums granted, not yet called for, $2.87; whole number of entries made, 258.

Amount in treasury at last annual meeting		$5 02
Amount received the present year		114 41
		$119 43
Deduct amounts paid for premiums	$89 04	
And expenses of society	25 33	
		114 37
Leaving amount now in treasury		$5 06

The annual meetings of this society are held on the second Tuesday in April, the day of our annual town meeting, both in the village of Wilson, by which means we generally have a full attendance.

E. S. HOLMES,
Sec'y Wilson Ag. Society.

WILSON, *January* 21, 1862.

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UNION AND OTHER SOCIETIES.

BEDFORD FARMERS' CLUB.

SOUTH SALEM, *January* 21, 1862.

B. P. JOHNSON, ESQ.:

DEAR SIR—I herewith send you the report of the Farmers' Club of Bedford; it should have been handed in in time to have been sent with our county report, but I did not receive it until last evening, consequently could not send it sooner. I regret that I have not received any reports from any of the other farmers' clubs in the county, although some of them have held fairs that would do honor to a county society; they have all neglected to make any report except the Bedford Club, and theirs is very short. I am well aware that they could have made it much longer.

Yours, truly, H. KEELER.

BEDFORD, *December* 1, 1861.

HENRY KEELER, ESQ., *President of the Society of Agriculture and Horticulture of Westchester county:*

DEAR SIR—In transmitting to you the annual report of the Bedford Farmers' Club, I have merely to say that its operations for the past year have not materially varied from its former practices, and which have been noticed in our previous reports. The beneficial results of our labors in disseminating agricultural information, in assisting the farmer in advancing the interests of his calling, and giving him a higher appreciation of its importance, are very encouraging, and we enter upon another year under auspicious circumstances, and with fair prospects of success.

Very respectfully yours, &c.,

JAMES WOOD, *Secretary.*

FARMERS' AND MECHANICS' ASSOCIATION, CAZENOVIA.

MR. B. P. JOHNSON:

Sir—By an act of the Legislature authorizing the formation of town societies for the promotion of agriculture, I understand that societies formed under the above mentioned act, are required to make an annual report of the proceedings of said society, for the past year, to the Secretary of the New York State Agricultural Society, on or before the first day of February of the succeeding year.

The Farmers' and Mechanics' Association of the town of Caze-

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novia, organized under the requirements of the act aforesaid, is in a prosperous condition, having in the treasury some $46, and no demands against it. Yet at a meeting of the officers of the society, held in June last, to make arrangements for an exhibition and fair, it was thought, that under the then existing state of the Union, and the excitement of the public caused thereby there could not be sufficient interest elicited to make it successful and satisfactory, and it was therefore decided not to have a fair, believing that a partial failure would be detrimental to the future success of the society. I have therefore no amount of premiums awarded by the society to report.

THOMAS CHILDS, *Secretary.*

CONEWANGO VALLEY UNION AGRICULTURAL AND HORTICULTURAL SOCIETY.

Hon. BENJ. P. JOHNSON, *Secretary State Agricultural Society:*

Sir—Agreeably to the statute of the State, we herewith report: That the corporate name of our society is the Conewango Valley Union Agricultural and Horticultural Society, formed from the four towns of Napoli, Coldsprings, Conewango, and Randolph, in Cattaraugus county. The society has held four annual fairs in the town of Randolph, with a good degree of success. The last year, notwithstanding the unsettled condition of all kinds of business in consequence of the war, there has been evinced a commendable zeal in the interest to sustain the fair. The society numbers 129 members. The total number of entries for premiums, was 436, as follows: 72 in the class of horses, 44 in neat cattle, 200 in the ladies' department, and the remaining entries in various branches of husbandry and the mechanic arts. The amount of premiums paid was $118. The total receipts were $195.38.

Paid premiums	$118 00
For repairs of buildings	4 13
Police	10 00
Sundries	63 25
	$195 38

JUDSON SIBLEY, *Secretary.*

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DUNDEE.

To the Sec'y of the State Ag. Society of the State of New York:

The president, treasurer and secretary of the Union Agricultural Society of Dundee, respectfully report, that the total receipts of the society for the current year, are... $878 18

Less, deduct for bad money	5 00	
		$873 18
Balance received from late treasurer		11 20
Total amount		$884 38

The disbursements of said society have been as follows, and for the following objects, viz:

For printing	$39 25	
For police and other contingencies	54 81	
For Dundee brass band	30 00	
For insurance	10 50	
For labor & materials for Agricultural hall	261 06	
For premiums awarded	406 15	
		$801 77
Leaving a balance on hand of		$82 61

It may be proper further to state the society's hall was consumed by fire in the spring of 1861, which accounts for the large expenditure for the construction of a new one.

We enclose a printed list of the premiums awarded at our last annual fair held on the 9th, 10th and 11th days of October, 1861.

All of which is respectfully submitted.

PETER McKEE, *Secretary.*

HAMILTON AGRICULTURAL AND MECHANICS' ASSOCIATION.

HUBBARDSVILLE, *January* 21, 1862.

B. P. JOHNSON, ESQ.:

Sir—We hand you herewith our annual report of the financial department of the Hamilton agricultural and mechanical association for the year ending in January, 1862.

The number of entries at our last exhibition, held in October last, were 466, the result of which, financially, the foregoing statement will show, leaving a small surplus in favor of the association.

As it regards the present and future prospects of this society, we feel under obligations to state, that they never looked brighter

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or more prosperous; and we feel safe in saying, that our next report will show a much larger amount in the hands of the treasurer than the foregoing.

Yours, very respectfully,

N. BROWNELL, Jr., *Secretary.*

HARPERSVILLE UNION.

To the Secretary of N. Y. State Agricultural Society:

We, the undersigned, secretary and treasurer of the Harpersville Union agricultural society, herewith present you the annual report of said society for the year 1861, as follows:

The third annual fair was held on the grounds of the society, in Harpersville, Broome county, N. Y., on the 17th and 18th days of September, and owing to the unfortunate state of the country and unfavorable weather, was not as well attended as usual. The number of entries was 488. The exhibition in the stock department was extra, showing the influence of the society on that branch of agriculture.

The display of fruit was light, owing to the season. Floral Hall, as usual, was well filled with varied and beautiful works of art.

The number of members, from causes stated above (and others not likely again to occur), has been reduced to one hundred (100).

The receipts of the society for the year were.....		$195 31
The expenditures as follows:		
Premiums	$113 41	
Last year's indebtedness	20 69	
Printing and other expenses	61 21	
		195 31

The society is at present out of debt and in good standing, with the prospect of a prosperous future.

The annual address was delivered by the Hon. Oliver C. Crocker, of Binghamton. The annual meeting for the election of officers was held on the 10th day of December, 1861, and the following named persons were elected for the present year (1862), viz:

Fred. H. Perry, president; Almon Wasson, vice-president; Edward P. Northrup, secretary; Leverett Barnes, assist't secretary;

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Robert G. Harpur, treasurer; James R. Firman, John F. Bishop, Daniel R. Stow, Morris J. Mudge, Daniel W. Squires, directors.

All of which is respectfully submitted.

EDWARD P. NORTHRUP, *Secretary.*
R. G. HARPUR, *Treasurer.*

January 29, 1862.

STATE OF NEW YORK, *Broome County,* } ss.

Edward P. Northrup and Robert G. Harpur, secretary and treasurer of the Harpersville Union agricultural society, being duly sworn, each for himself deposes and says that the above report, signed by them, is true and correct, to the best of their knowledge and belief.

EDWARD P. NORTHRUP,
R. G. HARPUR.

Subscribed and sworn to before me, this 30th day of January, 1862,

J. B. FRASIER, *Justice.*

ISCHUA VALLEY UNION AGRICULTURAL SOCIETY.

Report of the officers of the "Ischua Valley agricultural society," composed of the towns of Hinsdale, Ischua and Franklinville, in the county of Cattaraugus and State of New York, for the year ending February, 1862:

As this society was organized July 30, 1859, and no report has been made to the State Department, it may be well to make a brief statement of what was done by the society previous to the past year:

The society, through its officers, in the year 1860, leased for the term of twelve years a suitable site for a fair ground, 70 by 38 rods, containing $16\frac{62}{100}$ acres, located in the town of Hinsdale, one-third of a mile north of the village, and caused the same to be fenced with a tight board fence, seven feet high; cleared off all the stumps and logs, and made a trotting track a half mile long, under the most improved plan for course-making, at an expense of $850, $630 of which has been paid, leaving the society in debt in the year 1860, $220, and no fair during the year.

On the 26th and 27th of September, 1861, the society held a

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fair, the receipts of which were $225. Expense for buildings and other contingencies, except what was gratuitously done by the society, was $50 00
Premiums awarded 115 00
Add old indebtedness 220 00

$385 00
Deduct receipts 225 00

$160 00

Showing the society in debt $160 at the end of the year 1861.

ANNUAL REPORT OF THE FARMERS' CLUB OF LITTLE FALLS.

Report of the Secretary.

ROOMS OF THE FARMERS' CLUB,
LITTLE FALLS, *Jan.* 17, 1862.

R. P. JOHNSON, *Cor. Secretary of the N. Y. State Ag. Society:*

Dear Sir—The act of April 13th, 1855, makes it obligatory on the part of agricultural associations, organized under the statute, to have made out and transmitted to you, on or before the first day of February, of each year, an annual report of their transactions.

In conformity with the law in this respect, I beg leave to submit the following as the 5th annual report of the Farmers' Club of Little Falls.

This club on its first organization, adopted a rule of holding semi-monthly meetings, for the purpose of discussion and an interchange of views on topics relating to agriculture; and during the past year its meetings have been kept up with the usual attendance of members.

The essays read from time to time, together with report of discussions, and the doings of the society, have been published in the Dairy Farmer, so as to form a printed record of all important transactions had before the association.

During the early part of the year, the club, through its communication with the U. S. Patent Office, received various packages of seeds, of vegetables, flowers, &c., which were distributed among members and others, with the understanding that whatever promised to be worthy of cultivation, or adapted to our cli-

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mate and soil, should be made known to the club, and thus to the public. Of vegetables propagated from seeds thus obtained, and which seem worthy of cultivation, may be mentioned the short horn and Altringham carrots, the French sugar and yellow globe beets, the Hubbard squash, vegetable marrow, globe onion, hollow crown parsnip, the oxheart, green curled savoy, dwarf early savoy and early York cabbages, early Paris cauliflower, white Paris cos, and brown Dutch lettuce from France, the Daniel O'Rourk pea, and a few other plants.

Of all the seeds received from the Patent Office and distributed in the spring, a full report of their merits has not at this date been made to the club.

In our last report, mention was made of a plat of ground containing some thirty acres, on which was a circular track for driving horses, and which the club had leased for a term of years, for the purpose of holding its annual fairs. On this ground, during the year last past, the club has had a building erected in which to exhibit at its fairs, articles liable to be injured by exposure or inclement weather. The building is a substantial one, framed, 39 feet wide by 84 feet long, and so constructed in the interior as to afford ample space for showing a great variety of articles. The whole cost of the building, including fixtures, &c., will not vary much from $300.

A statement in reference to crops grown in particular localities is sometimes deemed of interest, as showing at a glance in what there is an abundance, and in what there has been a failure, and thus by comparing notes, the agriculturists in districts widely separated are mutually benefited.

In order that our report may have some value as a record in this respect, it may not be out of place to speak briefly of the several crops cultivated during the past year, within the boundaries of the county embraced by this club.

GRASS.

The farmers of Herkimer county are largely engaged in dairying—hence grass in abundance for pasturage, and for the hay crop, may be regarded as of the first importance.

The past season has been unusually favorable for the growth of grass in this section—the average temperature having been low, the fall of rain plentiful, and at such intervals as to favor a luxuriant growth of grass.

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Low lands employed for pasturage may have suffered somewhat from an excess of water, but on uplands, grass was abundant, and the yield of cheese per cow, therefore, comparatively large. The season in this respect is regarded as one of the best that we have had for years.

The abundant hay crop, except perhaps a part of the early cut, was harvested generally in excellent condition; this may be regarded as of good account, for a damaged hay crop affects materially the health and condition of stock wintered on it, and tells heavily on the profits of the following year.

Mowing machines, now in general use throughout the county, the use of the horse-fork and other labor-saving machines, make the operations of haying comparatively light and less liable to be controled by bad weather.

GRAIN.

Winter grain is not sown largely in the county, dependence being placed more upon spring sowings. Spring wheat, oats and barley, promised well until toward the period of ripening, when the Aphis made its appearance in great numbers, collecting on the heads of grain, at the root of each kernel, doing great injury to the crop, and in many cases rendering it wholly worthless. The insect disappeared as the stalk reached its maturity and became dry, or when cut, at the touch of the scythe, they fell to the ground in immense numbers, in many places almost giving color to the surface of the soil. The appearance of this pest here was new to our farmers, and no effort, that I am aware of, was made to destroy it, or counteract its ravages. Indeed, in many instances, farmers were not aware of its presence, until its work of destruction had been accomplished, and the crop, or rather straw, was nearly ready for the sickle. Next season, should the insect return, farmers availing themselves of the labors of Dr. Fitch, in making known its habits and nature, together with past observation and experience, will be prepared to act with a view of saving their crops from its ravages.

INDIAN CORN.

In dairy regions the corn crop is an important one, since as pastures and meadows need occasionally to be broken up, no other grain crop can be raised on the sod, it is believed, with more profit.

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The stalks of corn, when properly cut and cured, are esteemed for fodder equal in value to hay, and the grain being well adapted for the food of all animals on the farm, together with its freedom from disease, and from insects prejudicial to other crops, must always render it a favorite crop with the dairyman, on whose soil it can be successfully grown. The soil and climate of the southern part of Herkimer county, are favorable to the growth of this crop, particularly on the Mohawk Flats, and the rich slate and gravelly lands of Manheim, Fairfield, Danube and Little Falls.

The spring, however, of 1861, was cold and backward, so much so that the usual breadth of corn planting was not made. Even up to June, and through the early part of that month, the weather seemed to indicate a failure of the crop. Many who had planted early, had the seed rot in the ground, while that which came up, gave yellow and stunted plants; nor did it begin to grow vigorously until the latter part of June. The fall, however, was favorable—frost holding off until October, and hence (contrary to expectation,) the crop generally ripened and made good returns.

FRUIT.

The fruit crop of 1861 in this county may, on the whole, be considered a failure. No where, except in sheltered localities, and in certain places along the West Canada creek, was there an ordinary show of fruit. What may be considered perhaps as remarkable, was that this dearth of fruit covered nearly all kinds; of apples, pears and plums in particular, the crop was very light, in towns within the limits of the club. The fruit crop of 1860 was unusually good, but during the winter following we had a severe ice storm, where the rain falling and freezing, loaded the trees with ice, doing much damage to trees; this, followed immediately by extremely cold weather, and the ice remaining for a long time on the trees, may have operated to injure fruit buds. Plum trees, it was observed, came out badly injured in the spring of 1861, and as it was supposed by many, on account of the ice alluded to, and the cold weather following. Very many trees never put on their leaves, while others put out but a scanty and feeble foliage weeks after their time, and will doubtless not survive another season. The crop of plums in 1860 was good, but for several years previous had been generally light on

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account of the curculio. The disease, too, known as "black knot" appears to have been universal in the county, requiring close attention to preserve the life of trees.

Considerable attention has been given of late to pear and grape culture in this vicinity. Of grapes, there are many varieties cultivated successfully at Little Falls; and the show of these fruits at our fairs has always elicited admiration for large variety, beautiful specimens and perfection of fruit. Of the pears suited to this locality, may be mentioned the Flemish Beauty, Louise Bonne de Jersey, Oswego Beurre, Seckel, Vicar of Winkfield, Virgalieu, Glout Morceau and Winter Nelis. Some of the noted varieties seem to be short-lived and not so easily grown.

VEGETABLES.

The past season, though cold and backward at first, has on the whole been favorable for the growth of vegetables. The warm and pleasant fall gave time for the development and maturing of plants, some of which, at least in our climate and soil, require to be started early with a favorable season, in order to ripen before frost. The potato disease made its appearance here in August, and was of great injury to the crop, especially to the kinds known as the Junes and Early Junes. The disease, it is believed, was general throughout the county, though in some localities it was less destructive than in others.

The kinds of potatoes regarded as favorites in this vicinity are the Prince Alberts, the Irish Cups, Peach Blows and Western Reds—these last not being so liable to be affected with rot.

CHEESE, MARKET, &C.

The manufacture of the great staple of the county being general, and conducted by our farmers on a large scale, crops other than cheese are regarded rather as incidental. Dairymen for the most part purchase their flour, which comes from grain growing districts. A large quantity of grain also for stock feeding is annually imported into the county, many believing that permanent pastures, or those that are yielding fair returns, are *best*, and should not be broken up, and that a mixed husbandry of dairying and grain growing on the same farm, is less profitable than when the dairy alone is made the chief business. It is contended too, that old pastures on rich uplands, by the application of plaster, give more cheese, of better quality, and of finer flavor than grounds newly seeded—that on these last it takes years to

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get that fine, thick, velvety sward so common to old pastures; and hence the aversion to breaking up and re-seeding, unless some cause renders it imperative.

The market value of cheese during the year has been unsteady, but considering the depression of business, and the unsettled state of the country, the farmer here has been perhaps better remunerated than those engaged elsewhere in other branches of agriculture.

The average net sales of choice cheese for the season, it is believed, will not fall much below seven cents per pound, and as the quantity manufactured has been large, and the sales made generally for cash on delivery of the article, no section of the country perhaps has felt less of financial pressure than the dairy region of Herkimer county. And should our relations with European nations continue to be peaceful, the dairyman need have no fears but that his labors in the future will be rewarded with a fair remuneration.

ANNUAL FAIR.

The annual fair of the club was held on the 2d, 3d and 4th of October last, and was largely attended.

The show in all departments was creditable to the county, and will compare favorably, it is believed, with the best shows of county societies throughout the State. In the vegetable and fruit department we think was displayed more than ordinary excellence.

The leading object of the association has been from the first, to promote the best interests of agriculture, to bring together neighbors, friends and agriculturists, and by conversation at its meetings, by its fairs and by other means, to stimulate improved culture of the soil, and to advance and ennoble the profession. With this end in view, some peculiar features mark the conduct of the association, and may be observable in reference to our annual fairs:

1st. The articles for exhibition are admitted free—open to all, and solicited from all, without regard to a membership in the association.

Thus every one, whatever be his calling or means, meets here on common ground, and if he has produced any article which may be deemed by him worthy of note, he has the privilege of entering the lists and displaying it to friends and to the public.

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This is intended to reach and interest many who would not take the trouble to produce articles and bring them forward, if any entrance fee was charged, or if there was a spirit of exclusiveness manifested—which sometimes happens in associations of this character.

2d. Of premiums, a large number (in proportion) of agricultural books are given. This is deemed by some to be of more importance to agricultural progress, than when cash premiums are wholly made the rule. Agricultural knowledge, among the masses, is of slow growth, and books distributed in this manner often find their way into families where little or no agricultural reading is taken, and being perused in part or in whole by some member of the family, are suggestive, and thus possibly become of more value to the person and community than the whole amount of cash premiums paid at the fair.

On the last day of the fair, October 4th, Hon. James Sheldon, of Buffalo, delivered the annual address to the large audience in attendance. This address, able, eloquent, instructive, was worthy the occasion and the orator who gave it.

BOOKS, SEEDS, &C.

During the past year the club has purchased 100 volumes of the Dairy Farmer, also a number of volumes of essays on agriculture; these, together with reports sent from the Patent Office, the Transactions of the State Society, and of the American Institute, received from the Secretary of State in the early part of the year, have been in part distributed as premiums. No other books have been added to our library. We have the pleasure of acknowledging, from the Commissioner of Patents, at Washington, the recent receipt of a considerable package of seeds of vegetables and flowers, ten packages of grain, and ten volumes of late Patent Office Reports. These will be used as may seem best to subserve the interests of agriculture in this section.

MEMBERS, &C.

The whole number of persons who had become members of our association at the date of our last report, as appeared from the books of the society, was 225. These are considered permanent members, liable to be taxed when deemed necessary to further the interests of the association.

In the early days of the society, a tax of 75 cents was imposed on each member. Since that time, and up to the fall last past,

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the association has been in funds without resorting to taxation. During the past year, however, the cost of erecting a building on the fair grounds, together with premiums paid and the expenses of the fair, overbalanced our receipts from the fair and money on hand. To meet this indebtedness and have a balance in the treasury, an assessment of $1 on each member was voted by the directors at the meeting of December 6th. When this tax shall have been paid, it is believed that the club will be placed on a footing that will enable it to go on successfully in its work, without any further call upon members.

X. A. WILLARD, *Secretary.*

PREPARATION OF FOOD FOR STOCK.

AN ESSAY READ BEFORE THE FARMERS' CLUB OF LITTLE FALLS, BY X. A. WILLARD.

Whatever conduces to the better care or better management of stock, adds materially to the prosperity of the community. A wretched system of agriculture, not only bears heavily upon him who practices it, but its influence extends further, and penetrates every branch of industry.

Paralyze the agricultural interests of the country and the manufactory closes, trade stops, business stagnates, and the most ruinous consequences are the result. So that high culture of the soil, or the successful management of special branches of agriculture in any locality, advances the value of landed property in country and village, and benefits all classes of society. The labors of this club, it could be proved, have been and will continue to be a direct pecuniary advantage to every mechanic and business man in town; for discussions of subjects connected with farming cannot be carried on, in the public manner here practiced, for any considerable length of time, without stimulating persons to think and to adopt better measures for the care and management of farms, the result of which is ample means; and as means increase, business necessarily enlarges in every direction.

I know that there are many ways to accumulate wealth; but wealth is only an exponent of labor, and nearly all labor is in some measure connected with the soil and its products. I speak of this here, because persons not directly engaged in agriculture, seem to forget that their wealth and prosperity, though flowing through various channels, start from one common fountain.

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Thirty years ago, Herkimer county was comparatively poor. Dairying was then in its infancy, and the general treatment of stock was calculated to produce but poor returns; since this branch of farming has become more and more systematic in its operations, every year we make a little advance, either in the construction of stables, the breeding and management of stock, or the manufacture of cheese. The barn for milking, the stanchion for foddering, are a great advance over the yard and open field, where these operations were formerly carried on.

Can we not take another step onward by erecting stables, dry, well ventilated, to which are attached store rooms for roots, cabbages, kohl rabi, &c., and places where mechanical implements are arranged for chopping and steaming all the fodder? Is it not reasonable to suppose that a carefully prepared diet would be more economical and conduce to a higher tone of health and more vigor, than to force the animal to consume a large quantity of dry hay, deficient often in the elements of nutrition which are the most needed.

The wintering of stock is a serious drawback on the profits of a farm. At the present prices of hay, it will cost on an average nearly all that the animal has made during the year in cheese, to pay for her keeping through the winter.

When hay alone is fed, I estimate the quantity required at 2½ tons per animal, though perhaps a little less might do, if it has been cut at the right time, and cured in the best manner.

The figures stand thus:

Produce during the summer, for cheese, 500 lbs. at 9c..	$45 00
Consumed in winter 2½ tons of hay, at $15.....	37 50
Profits per cow	$7 50

It is evident, when hay is $15 per ton, that warm stables, concentrated food, roots, and cut hay, may be used at a profit. Indeed I am satisfied that if conveniences were in operation among us for cutting and steaming food, and a mixed diet be selected of hay, straw, grain, roots, &c., our stock could be wintered at one third less cost, and with better results as to the health of the animal, and production of milk, than by our present mode of feeding.

Some two years since in an essay before the club, "On the comparative value of food for producing butter and cheese," I

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had occasion to suggest the kind of grain which it seemed to me to be preferred in feeding, in order to keep the animal in condition, and get the best returns in milk. Since that time the statements of Mr. Horsfall, of England, embodying the result of his experiments in feeding, have been published in this country, and also an excellent work on Dairy Farming, by Mr. Flint. I find in both of these works, testimony in favor of the views taken in my essay; and I have observed nothing in my experience during the past two years to change the opinions then set forth.

Of Mr. Horsfall's experiments, Mr. Flint says: "His first object was to afford a good supply of the elements of food adapted to the maintenance, and also to the produce of the animal; and this could not be effected by the ordinary food and methods of feeding, since it is impossible to induce a cow to consume the quantity requisite to supply the waste of the system, and keep up, at the same time, a full yield of the best quality of milk.

He used, to some extent, cabbages, kohl rabi, mangolds, shorts and other substances, which are rich in the constituents of cheese and butter.

Says Mr. Horsfall: "My food for milch cows, after having undergone various modifications, has for two seasons consisted of rape cake five pounds, and bran two pounds, for each cow, mixed with a sufficient quantity of bean straw, and shells of oats, in equal proportions, to supply them three times a day as much as they will eat. The whole of the materials are moistened and blended together, and, after being well steamed, are given to the animals in a warm state. The attendant is allowed one pound to one and a half pounds per cow, according to circumstances, of bean meal, which he is charged to give to each cow in proportion to the yield of milk; those in full milk getting two pounds each per day, others but little. It is dry, and mixed with the steamed food when dealt out separately.

When this is eaten up, green food is given, consisting of cabbages, from October to December, Kohl rabi till February, and mangold till grass time. With a view to nicety of flavor, I limit the supply of green food to thirty or forty pounds a day for each cow.

After each feed, four pounds of meadow hay, or twelve pounds per day, is given to each cow. They are allowed water twice a day, to the extent they will drink."

In May, Mr. Horsfall turns his cows into rich pasture, but

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houses them at night, feeding them a mess of the steamed mixture and some hay, night and morning. After the first of October, the cows are kept housed.

The yield of milk from his cows averages from 12 to 16 quarts per day for 8 months after calving; the milk of a decidedly superior quality.

"To one leading feature of my practice," he says, "I attach the greatest importance—the maintenance of the condition of my cows giving a large quantity of milk. I am enabled, by the addition of bean meal in proportion to the yield of milk, to avert the loss of condition in those giving 16 to 18 quarts per day, whilst on those giving a less yield, and in health, I invariably effect an improvement;" and with regard to steaming the food, he says: "My experience of the benefits of steaming is such, that if I were deprived of it I could not continue to feed with satisfaction."

From his experiments, extended over several years, he infers that the most essential element in the food of the milch cow, is albuminous matter, and that any deficiency in the supply of this, will be attended with loss of condition and a consequent diminution in the quality of milk. It will be remembered that the cow has four stomachs, and that in feeding concentrated food, for instance, by itself (as is usual with dairymen,) it might pass directly to the third stomach, like food in a finely divided state, similar to that produced by chewing, and hence would not be fully digested. This doubtless has been observed by those having the care of stock, and this fact alone would seem to suggest that meal should be fed with cut hay, in order to be carried into the first and second stomachs, and from thence thrown into the mouth to be thoroughly masticated.

The experiments of Mr. Horsfall, which have been alluded to, are very full, and seem worthy of attention by those who make dairying a business; and I trust the time is not distant, when some one in Herkimer county will take the initiative, and erect buildings with a view to test the economy of selecting and preparing food for stock, for there cannot be a doubt but that many thousand dollars can be annually saved by a careful and systematic course of feeding on the basis of these experiments.

I confess I have not given so much time here to the consideration of this subject as it deserves. Up to yesterday I had suffered

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the time to pass away since our last meeting without fixing upon and fully digesting a plan for its treatment.

The question, as given out, covers a broad field, and could not be gone over in one essay, since the food for horses, for milch cows, for growing animals, and for other animals, would differ in many respects for each class of animals; again, the mechanical arrangements for preparing food, the manner of doing it, the substances to be selected, the quantity to be used for each, their constituents and applicability to the several animals under consideration, and the chemical changes effected by the operations proposed, are subjects each of which would be of sufficient importance to occupy at least one essay.

The subject is of vast importance to the dairymen of Herkimer county, since food and feeding are the foundation of all dairy success. If, as the experiments of Mr. Horsfall would indicate, the milch cow is an instrument of transformation by which hay, roots, grain, &c., may be changed into butter and cheese, it is important to know how to do it economically. By this system we see why clover, rich in albuminous matter, produces more butter and cheese than some other grasses, and why farms where plaster has been used largely to induce the growth of this plant, have succeeded better than where plaster has not been used.

Knowing that something by way of opening a discussion was expected from me, I have endeavored to approach the subject without much regard to order or arrangement, hoping to hear it fully discussed by members of the club, and trusting that abler pens may follow with essays upon the points suggested.

NOTE.—At the club, members thought that the average yield of cheese per cow in the county would fall below 400 pounds; this would make a loss, instead of profit, of $1.50 per cow.

Dairying, it was said, became pretty general throughout this county, about thirty years ago. There were individuals in different parts of the county, who had commenced a few years before that time—they were known as cheese men—and had about half the number of cows that are kept on the same farms at the present time. They did not like to have it known that this branch of farming was profitable, and counseled each other "to keep dark," as to the process of manufacturing, profits, &c., fearing that others might go into the business and overdo it. The stanchion for confining cows in the stable was introduced

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some thirty years ago, though its use did not become general until ten years later. The first "milking barn" in the county, or building erected for the special purpose of milking, it was said was put up in the town of Norway. The first, or among the first, that was put up in the town of Fairfield, was in the year 1842—in Manheim, in the year 1845, and in Danube, in the year 1850.

THE GRASSES—HAY MAKING, &C.

AN ESSAY READ BEFORE THE FARMERS' CLUB, JUNE 21, 1861, BY X. A. WILLARD.

No discussion, it is understood, will be had by the club, after to-day, until sometime in September. By that time the grass crop of Herkimer will have been harvested. I can present nothing better, therefore, for your consideration at this time than a few thoughts on grasses and on hay making.

The grasses on which our main dependence is placed for wintering stock, are timothy, the clovers, and red top. White clover, June grass, and some other varieties not much esteemed, are indigenous.

I am not aware that any great effort has been made to introduce other varieties of natural or artificial grasses, though we have reason to believe some at least to be well adapted to our soil and climate, and from well authenticated facts in reference to their value, they would unquestionably add greatly to the productiveness of our pastures and meadows.

In a county where dairying has been conducted for so long a time, and on so large a scale as in Herkimer, it would seem that more trials should have been made of other species of grass than those enumerated—at least for stocking down pastures, where a variety and succession in grasses are deemed important.

It is not proposed to discuss the kinds to be preferred, or as most profitable in connection with those now grown; it is sufficient to say that the grasses of different species grow well together on the same soil, and thrive better than when grown separately. Mr. Flint, in his work on grasses, says: "When we consider that some species are best adapted to one locality, and others to another, some reaching their fullest and most perfect development on clay soils, and some on lighter loams and sands, we cannot but wonder that the practice of sowing timothy and red top on nearly all soils, clays, loams and sands, indiscrimi-

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nately, both on high and low lands, should have become so prevalent.

"It is equally remarkable that while but very few of our grasses, and these for the most part species peculiar to sterile soils, flourish alone, but nearly all do best with a mixture of several species, it should so constantly have been thought judicious to attempt to grow only two prominent species together, with merely an occasional addition of an annual or biennial clover, which soon dies out.

"When this course is pursued, unless the soil is rich and in good heart, the grass is likely to grow thin and far between, producing but half or two-thirds of a crop, whereas the addition in the mixture of a large number of species, would have secured a heavier burden of a better quality. These considerations, it seems to me, indicate the true direction in which the farmer who wishes to make "two spears of grass grow where one grew before," without impoverishing the soil, should turn his attention.

"I hold this proposition to be indisputable, that any soil will yield a larger and more nutritious crop, if sown with several kinds of nutritious grasses, than when sown with only one or two species. Indeed it is a fact, well established by careful experiment, that a mixture of only two or three species of grasses and clover will produce a less amount of hay than can be obtained by sowing a larger number of species together. There may be some exceptions to this rule, as in cases where the yield of timothy and red-top, owing to the peculiar fitness of the soil for these grasses, is as great as it can stand on the ground covered by them. But it is nevertheless true, that if we sow but one kind of grass, however abundantly the seed may be scattered, or on whatever soil it may be, or under however favorable influences, yet only a part of the plants will flourish; vacant spaces will occur throughout the piece, which will be filled up after a time by grasses of an inferior quality, weeds or mosses. This is the case, in some degree, also, where only two or a smaller number of species are sown; while if a mixture made up of a larger number of seeds is used, the plants will cover the entire surface and produce a far better quality of herbage."

The importance of cutting grass at the proper season, and so curing it that it may retain the largest amount of nutriment, cannot be over-estimated.

Cows wintered on poor or innutritious food, dusty or mouldy

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hay, even if they do not in consequence contract disease and die, cannot reasonably be expected to produce milk of the best quality or in abundant quantity. A good deal of what is termed bad luck with stock in spring, results, in my opinion, from their improper treatment during winter, from feeding on hay made from grass cut after it had lost much of its nutriment, from its being badly cured, or its best parts wasted in the field. Bad food will not produce healthy milk, although such milk may be made into butter and cheese.

It seems to me this should be distinctly in the mind of the farmer before he commences cutting his crop, viz: The uses to which portions of his crop are to be put, the best time for feeding, &c. He will look over his meadows and select what is to be preferred for spring use for cows in milk, storing it where it may be readily obtained when needed. Clover cut early and properly cured, induces a large flow of milk, and hence would seem to be the kind of grass to be selected for spring use. Timothy is a more nutritious grass than clover, and this it would seem would be better adapted for winter feeding.

The following table will show the nutritious value of the grasses usually cultivated in the county, so that we can judge of their value, and it may serve somewhat as an index for feeding:

One hundred parts as taken green from the field.

	Water.	Albuminous or flesh-forming principles.	Fatty matter.	Starch, gum, sugar, &c.	Woody fibre.	Ash.
Clover, red	81.01	4.27	.69	8.45	3.76	1.82
Clover, white	79.71	3.80	.89	8.14	5.38	2.08
Timothy	57.21	4.86	1.50	22.85	11.32	2.26
June grass.....	67.14	3.41	.86	14.15	12.49	1.95

By comparing the table below with that above, it will be seen at what a loss the dairyman is subjected by allowing weeds to occupy a place in his pastures and meadows.

Weeds used for the purpose of pasturage or for wintering stock, besides being bad economy in a nutritive point of view, have other serious disadvantages, such as the exhaustion of land, the tainting of dairy products, and an injurious effect on the animal's health.

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	Water.	Albuminous matter.	Fatty matter.	Heat producing principles.	Woody fibre.	Ash.
Ox-eye daisy.....	71.85	2.12	.999	12.64	10.51	1.86
Yellow buttercup.	88.15	1.18	.507	6.26	3.00	.91
Sorrel	75.37	1.90	.545	7.62	13.04	1.51

At the time of flowering, grasses contain the greatest percentage of soluble matter, such as starch, gum and sugar, and are in condition to furnish more nutriment to animals than at a later period, when the seed has ripened and these elements transformed into woody fibre.

The observing dairyman, aware of the importance of cutting his grass when it is succulent, will endeavor to harvest the crop at this stage of its growth.

The use of mowing machines has rendered it comparatively easy for the farmer to cut his grass at almost any desired period of its growth; and though there may be various opinions as to the time when grass should be cut in order to get the most in bulk, and, at the same time, the largest amount of nutriment, those who have made careful observations in feeding stock, are now pretty well agreed that the time of cutting should be about the period when the grass is in flower. When cut at this time, it will be less exhausting to the soil than if suffered to stand until the seed has ripened, and if there is less in bulk, it can all be made available; nutriment, and not a mass of useless woody fibre, is what is to be desired.

A question of some importance, but one on which there are many opinions, is with regard to the height from the ground at which grass should be cut. Some advocate close cutting as securing the largest returns one year with another, and as not particularly prejudicial to the preservation of meadows. Others again, say that it is destructive to timothy, especially if the season after cutting happens to be dry; that close cutting is a fruitful cause of meadows soon running out, and that in the long run the yield of grass, other things being equal, will be greater when the stubble is left two or three inches high. They reason that the stubble protects and nourishes the roots, and leaves the land in better condition for the second crop, and therefore pays much better than the occasional increased quantity of hay that may be had from close cutting.

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On the other hand the advocates of close cutting say, that in the old fashioned way of cutting with a scythe, no difference in the grass of the succeeding year has been observed in meadows where the swaths had been pointed out high and the centres cut low, and that if it were true that high cutting increased the quantity of grass for the next season, the fact would have been plainly shown in streaks through the meadow, as the result of such cutting. They urge also, in favor of low cutting, that when the after grass is to be fed, there is not that chance for stock to pull out the bulbs of timothy as is often the case when the stubble has been left high.

"Make hay while the sun shines," is the old adage—but how? If the weather is fine, grass can be cut down and dried, and carted to the barn. It does not follow, however, that it is good hay; for it may have been dried too much, or all the tender leaves broken and wasted in the field.

The annual loss from over curing grass, is immense, and is not generally taken into account by the farmer, who, intent only on securing his crop from rains, often allows the dews, the sun and winds, to injure its flavor and substance. Grass should never be dried more than just sufficient to have it keep well in the mow. It should be put into the barn as green as it will possibly do, in order that it may retain its juices, its flavor, and tender leaves. In my opinion, the best way of curing grass, is to cut it when the dew is off—spread evenly, and dry in one day's sun if it possibly can be done; but if not, put in cocks before the dews begin to fall at night, and haul to the barn as green as it can be without having it hurt. Grass that has not been wet, can be stored much greener than where it has been exposed to rain; for then the water must be dried out, and in order to do this a good deal of the hay will generally be dried too much.

By having several mows, and putting a few loads at a time on each, instead of filling up one mow first, I have been enabled to store hay very green, and have it come out in spring bright, clean, and with an odor almost equal to new mown hay. This is the kind of hay on which cows will thrive, and for which they are willing to pay back in milk of the best quality.

Clover is difficult to make and must be cured in cock; for if exposed to the scorching sun, its succulent leaves and tender blossoms are soon browned, its sweetness in a measure lost, and liable to be wasted by being handled. Here the hay cap is of essential

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service to protect from dews and rain. With hay caps to cover the small cocks of clover until it has time to cure out, every farmer may annually save many loads which otherwise would be badly injured, or rendered nearly worthless from rains and wasted by frequent handlings.

I have seen it estimated, that with those who have a hundred tons of hay to harvest, a hundred hay caps in use would annually pay for their cost several times over. They are easily made from coarse cotton cloth, will last with care many years, and are regarded as indispensable by those who have once used them. Some farmers make a practice of salting clover in the mow in order to cure it; but with many it is regarded as injurious to stock, necessarily forcing the animal to consume, at times, more salt than is needed. There are instances where stock have been seriously injured from this cause. The better way seems to be to cure clover in the field, and have salt in some place where the animal can come to it at pleasure, rather than forcing it to eat salted food.

As the curing of hay depends in a great measure on the state of the weather, anything that will assist the farmer in making up his judgment as to the approach of storms and their duration, of course is desirable. The barometer I regard as an indispensable help in this matter. By taking observations daily with it, and noting the changes, one may be enabled to judge pretty accurately of the weather for many hours in advance, and thus time his work so as to secure the crop that otherwise might be lost. The small cost at which they may now be had—the pleasure of noting atmospheric changes, and the practical value of the instrument in saving valuable crops in the way alluded to, should commend them to general use. For I hold that the farmer, like those following other professions, should avail himself of every help that science places within his reach for advancing his happiness and prosperity.

Haying is one of the pleasant parts of farm labor. It occurs in midsummer, when the whole country presents a pleasing aspect. The click of the mowing machines making their way through the tall grass—the odor of the newly mown hay—the lusty arms rolling it into bunches—the broad green carpet of closely shaven sward—the teams hauling the hay—the soft wind fanning the heated brow—hill, dale, and woodland in the distance, with the blue heavens above—all these make it a kind of gala day—make

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it what it has ever been from time immemorial, one of the most delightful periods of farm life.

The labor in the hay field, it is true, is often hard and wearisome; but health, vigor, appetite, sleep—such as is unknown to those living in the atmosphere of cities—is a recompense, how differently estimated by the two classes. Well may the city's favored son, pale and careworn, drinking in at every breath a pestilential atmosphere, exclaim:

"None can describe the sweets of country life,
But those blest men that do enjoy and taste them.
Plain husbandmen, tho' far below our pitch
Of fortune placed, enjoy a wealth above us;
To whom the earth with true and bounteous justice,
Free from war's cares returns an easy food.
They breathe the fresh and uncorrupted air,
And by clear brooks enjoy untroubled sleeps.
Their state is fearless and secure, enriched
With several blessings, such as greatest kings
Might in true justice envy, and themselves
Would count too happy, if they truly knew them."

Whittier, too, I think, draws a charming picture in his poem of Maud Müller, in her rustic beauty engaged at hay-making, and where he describes the Judge fascinated by her charms, and speaking to her—

"Of the grass and flowers and trees,
Of the singing birds and the humming bees;
And talked of the haying, and wondered whether
The cloud in the west would bring foul weather;"

and then looking back as he climbed the hill and sighing—

"Would she were mine, and I to-day
Like her a harvester of hay;
No doubtful balance of rights and wrongs,
No weary lawyers with endless tongues,
But low of cattle and song of birds,
And health and quiet and loving words."

MANLIUS AND POMPEY.

The president, secretary and treasurer of the Manlius and Pompey agricultural and mechanical association, in compliance with chapter 425 of the Laws of the State of New York, for 1855, respectfully report to the New York State Agricultural Society, that there has been raised by subscriptions for memberships and otherwise, during the past year, commencing July 30, 1861, the sum of $183.96; and that the expenditures of the asso-

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ciation for the past year, commencing July 30, 1861, have been as follows:

For buildings	$44 73
Printing	44 00
Police during the fair	30 50
Rent of fair grounds	25 00
Salary of secretary	25 00
Incidental exp's, such as fodder for stock, &c.	7 35
Use of hall for meetings of soc'y and board	2 75
Postage	2 33
	$181 66

There are still a few bills for expenses lately incurred, &c., amounting perhaps to $10; to meet which there are due of unpaid subscriptions, collectable, at least an equal sum, so that the society is practically without debt. The expenditures for the two previous years were over $300 per annum, the greater part of the buildings having been completed in those years. The association have leased for their use, as long as is necessary for the purposes of their annual fair, for the term of five years, a very commodious lot embracing about 14 acres of ground, with a good spring of water. There have been three annual fairs held, the last one having been on the 24th and 25th of September, 1861, at their fair grounds in Manlius village.

At the organization of the society, it was deemed that the interests of agriculture would be better promoted by opening the fair to the free admission of all comers, and by not awarding money premiums, under the belief that competition for the honor of excelling, would be a better stimulus to efforts at excellence, than the offer of money. The fairs thus far held, have been largely attended. It is believed that at least ten thousand people were present at the last one.

A handsomely lithographed diploma has been provided which is dispensed to those who are awarded premiums by the various judges. During the winters of 1859-60, and 1860-61, meetings for discussion of agricultural topics were held at various places in the two towns, which were in the main well attended, and believed to be of interest and importance. None have as yet been held the present winter.

We transmit herewith, a newspaper report of the premiums

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awarded at the last fair, (which was drawn up mainly by the secretary); also a copy of our premium list, constitution, names of officers, &c.

The association have built and own two large and commodious buildings for exhibition of agricultural products, and various manufactures, and have also suitable fixtures for temporary accommodation of animals exhibited.

NATHAN SEWARD, *President.*
WM. MANLIUS SMITH, *Secretary.*
ROBERT FLEMING, *Treasurer.*

UNION AGRICULTURAL SOCIETY, AT PALMYRA.

B. P. JOHNSON, Esq.,
Secretary N. Y. State Ag. Society:

SIR—By direction of our board of managers, I submit the following report of the Union agricultural society, at Palmyra, Wayne county, for 1861-2:

This society was organized pursuant to law, in 1856, embracing the western Assembly district of the county of Wayne, and also the towns of Farmington and Manchester, in Ontario county. Its grounds, substantially enclosed, contain twenty acres of land, admirably adapted to its use for exhibitions, held on contract for a term of years, and upon which has been expended by the society over $6,000 for building, fencing, wells, and other improvements. It has an excellent circular track for the display of horses, of the length of half a mile, and also a commodiously constructed Floral Hall.

The annual fair for 1861 was held on the 2d, 3d and 4th days of October. There was a satisfactory exhibition of stock, products, fruits, agricultural implements, ladies' handiwork, &c. In the department of horses, the show was good beyond precedent. The total number of entries of all articles was 418. The premium list, as offered, besides complimentary testimonials, amounted to $798. The aggregate amount of the money awards was $427.75, of which $194.30 was called for and paid, and the residue voluntarily left by successful competitors in the society's treasury. The attendance of people was large and spirited, evidencing the popular interest felt in this mode of exhibiting and comparing the productions of agriculture and horticulture, and of the inge-

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nuity and skill of the various other industrial branches. The annual address, appropriate to the occasion, was delivered by Mr. Henry M. Clark, of Palmyra.

SEVENTH ANNUAL REPORT OF THE RUSHVILLE UNION AGRICULTURAL SOCIETY.

To the Secretary of the N. Y. State Ag. Society:

The undersigned, president and secretaries of the Rushville Union agricultural society, herewith transmit their annual report of the transactions of the society for the year ending January 31, 1862. It will only be necessary to refer to the preceding reports to ascertain the facts relating to the real estate, buildings, &c., owned by the society. The annual fair and cattle show of the society was held on their grounds, at the village of Rushville, September 23d and 24th, 1861; the large attendance, varied and abundant exhibition of animals and articles, competing for its premiums, were encouraging, and attested the interest taken by the community around us in the enterprise. The treasurer's report for the year 1861 makes the following exhibit of the financial condition of the society:

Receipts for 1861: Cash on hand	$10 57
Receipts at office, 1861, tickets, &c.	428 17
Use of grounds	12 00
Total	$450 74

Disbursements during year 1861.

Paid for printing premium lists, posters, cards, &c.	$40 75
repairs, fences, buildings, &c.	25 00
awards for premiums	274 50
incidental expenses	71 97
Cash in treasurer's hands	38 52
	$450 74

The society is out of debt and in good working order, with the interest of the public increasing in its favor.

All of which is respectfully submitted.

W. N. PERRY, *President.*
GEO. W. STEARNS, *Cor. Sec'y.*
JOHN SAYRE, *Rec. Secretary.*

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SANDY CREEK, RICHLAND, ORWELL AND BOYLSTON AGRICULTURAL SOCIETY.

B. P. JOHNSON, Esq., *Secretary New York State Ag. Society:*

The fourth annual fair of the society was held on their grounds in Sandy Creek, Sept. 13th and 14th, 1861. The weather was fine and the attendance large. The annual address was delivered by Hon. Theodore Sedgwick, of Syracuse, and was practical and rich in thought. The judges discharged their arduous duties in a manner which would justify the opinion that they designed to do justice to all, and the exhibitors were generally satisfied with their decisions. The whole number of entries was 623. The stock department was unusually fine, and embraced some of the finest stock to be found in this section of the State. The domestic department was also very good, comprising a great variety of articles which reflected much credit upon the exhibitors. And finally, all departments were well filled, showing conclusively that an increasing interest is being taken in agriculture, horticulture, &c., within the bounds of the society.

The amount of cash in the hands of the treasurer, at the last annual report, was $271.94; the amount received the present year is $513.43, making $785.37. The amount disbursed for premiums, buildings, &c., is $699—leaving balance in the treasury of $86.37. E. H. SERGEANT, *Secretary.*

SOMERSET, HARTLAND, AND ROYALTON.

The Union agricultural society of Somerset, Hartland and Royalton, was organized last winter. It comprises the three towns above named, which are on the east line of Niagara county. The society have leased a plot of ground containing about seven acres, and enclosed it with a board fence seven feet high; and have also built a floral hall 30 by 60 feet. There is on the ground a well graded track 120 rods around, (done by voluntary labor) for the exhibition of horses, both with reference to speed and action.

There are 22 life members belonging to the society, comprising a class of men that will ever strive to promote agricultural interests. The annual meeting was held the fourth Saturday in January, by adjournment, (the third being the regular day.)

M. S. Hunting, Esq., of Somerset, delivered the address, which was eloquent and instructive.

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SKANEATELES FARMERS' CLUB.

SKANEATELES, N. Y., *January* 27, 1862.

B. P. JOHNSON, *Secretary N. Y. State Agricultural Society:*

SIR—We herewith forward to you the annual report of the treasurer of the Skaneateles farmers' club for 1861, the required affidavit of president and secretary, and an order for the amount out of the appropriation for the promotion of agriculture in the county of Onondaga, to which our society is entitled. But as the exact amount due to our club does not seem to be for us to determine, and we not having been informed, the definite amount could not be inserted in the accompanying order. If this omission can be properly supplied by you at Albany, we shall be very glad; if not, we hope to be informed as to the amount to which our society may be entitled, or put in the way of determining it.

As a report of our last annual fair has been sent to you in due season, by the secretary of the club, for 1861, we presume that the report of our proceedings in that particular, will be deemed sufficient; however, we would remark that our fair for 1861, was such as to give much satisfaction and encouragement to all who participated in it.

In endeavoring to adopt such regulations as would best promote the objects of our society under our circumstances, as in former years, the fair was made free to visitors, with freedom to any one and all, to compete for diplomas, the only premium given.

The success of the fruit and floral exhibitions held by the club during the summer months, though not extensive, has been such as to cause all concerned to desire their repetition. If our reports of the proceedings of last year should seem meager, we hope to excuse past short comings by greater efforts during the coming season; for nothing within our sphere of labors can be more gratifying to us than to be able to send in such reports, in obedience to the requirements of the State, as will in some degree extend the usefulness of our labors beyond the narrow limits of our town or county.

Very respectfully,

JOAB L. CLIFT, *President.*

C. B. THORNE, *Secretary.*

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METEOROLOGICAL OBSERVATIONS, By Wm. M. Beauchamp, *Skaneateles, Onondaga County, N. Y.*

Latitude, 43—Longitude, 76¼—932 feet above tide water. Observations taken three times each day.

	February, 1861.	March, 1861.	April, 1861.	May, 1861.	June, 1861.	July, 1861.	August, 1861.	Septem'r, 1861.	October, 1861.	Novem'r, 1861.	Decem'r, 1861.	January, 1862.
Barometer	28.86	28.89	28.88	28.83	28.90	28.90	29.00	28.97	28.93	28.90	29.00	28.94
Thermometer	....	30.	45.	50.	63.	67.	66.	60.	51.	37.	31.	30.
Wind ..... North	1	10	10	3	4	3	4	1	3	3	1	5
Northeast	....	4	6	6	2	2	9	4	1	....	2	6
East	4	1	2	5	5	....	5	2	1	4	1	5
Southeast	18	14	19	15	16	14	8	14	16	17	17	18
South	16	9	8	19	6	13	13	18	21	9	12	14
Southwest	21	7	4	4	6	14	9	11	13	8	8	6
West	19	30	23	20	18	17	18	14	19	22	24	18
Northwest	5	17	17	28	28	20	16	24	17	24	25	17

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METEOROLOGICAL OBSERVATIONS—CONTINUED.

		February, 1861.	March, 1861.	April, 1861.	May, 1861.	June, 1861.	July, 1861.	August, 1861.	Septem'r, 1861.	October, 1861.	Novem'r, 1861.	Decem'r, 1861.	January, 1862.
Weather...	Clear or fair..	19	13	22	25	21	16	21	20	16	18	17	15
	Cloudy.....	68	75	68	67	26	81	72	79	78	80	80	82
	Rain.....	3	5	8	11	10	16	9	9	13	7	4	6
	Fog	....	7	....	....	1	....	2	1	1	2	9	4
	Snow	15	3	5	....	....	....	....	....	1	8	11	11
	Frost	....	23	....	6	1	....	....	....	3	15	19	26
	Windy	5	4	....	3	2	....	1	1	....	8	7	6
	Thunder	....	....	2	1	5	11	3	2	....	....	....	....

March 1st, 1861, robins returned. 11th, lake entirely frozen over. 30th, lake free of ice; sparrows returned the 16th; meadow larks and Phœbe birds the 24th. 30th, crocus in bloom. April 6, hepathicas in bloom. 10th, swallows appeared. 12th, the cuckoo seen; daffodils in bloom the 14th. Snow disappeared, and polyanthus and cowslips succeeded on the 21st; butterflies busy. May 1st, snowing all day. 3d, severe frost. On the 7th, dandelions in blossom, and golden robins seen and bobolinks heard. 9th, humming birds. 11th, yellow birds. 13th, goldfinches; and on the 15th, the cat birds were seen; plum and cherry trees in bloom the 15th; pear the 19th, and peach the 25th. June 6th, fire-flies seen; yellow butterflies and caterpillars very busy. 18th, white frost. July 3d, comet seen. November 2d, hurricane at midnight. January 5th, 1862, mercury one below zero.

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ADDRESS OF HENRY ELLERY, PRESIDENT OF THE FARMERS' CLUB, SKANEATELES, AT THE 7TH ANNUAL FAIR, OCT. 10, 1861.

Ladies and Gentlemen:

It is with great diffidence and embarrassment that I now stand before you to make a few remarks on the subject of agriculture, for which duty I must confess I am but ill prepared, as this is the first time I ever attempted to address an audience on any occasion. I have to ask your kind indulgence to bear with me in my efforts. I am under the necessity of collecting and committing my rambling thoughts to writing to connect them together, or I should fail to express my ideas clearly for you to understand me.

The great object of all agricultural associations is progression and improvement, and any address which may be given on such occasions should be practical, instructive and clearly expressed, to be of any benefit, a point where I probably shall fail. It is often the case that the occupation and retired position which the tillers of the soil are almost necessarily placed in, by being somewhat isolated from daily intercourse with the busy haunts of highly educated and polished society (which is generally accessible to the other professions,) and does not give the farmer much opportunity of discussing and speaking on public occasions, and therefore cannot possess that self-confidence which is requisite to stand up before an enlightened audience and acquit himself without much embarrassment. It is therefore generally left to some of the professional faculty, or others not much acquainted with the business, to speak on such occasions as the present—perhaps a professor of law, or divinity, or professor of languages, many of whom indisputably have the ability to please the ear and charm the mind by their flowing oratory and graceful delivery. It is truly enchanting to listen to such a "feast of reason and flow of soul." This ought not to be the case, that the farmer should have to go to the professions for instructions how to cultivate and improve his fields and increase his productions; to call on those who, probably, never turned a single furrow of the soil, or cast a handful of seed into the bosom of our common mother earth. What would be said or thought of the college of physicians and medical faculty, if they should call on the farmer to compound their medicines and prepare their prescriptions for the sick, or to perform the most difficult, complicated and critical surgical operations, or give them directions how to

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skillfully dissect the anatomical subject? What would be the opinion expressed of the abilities of the learned faculty of the abstruse sciences if *they* should call on the tillers of the soil to settle their disquisitions on theology, philosophy or astronomy; or be called on by that prying genius, the geologist, to determine for him the different strata of the rocks and the earth, relative to the age of the world, when they had not, perhaps, taken the first initiatory step, or looked beneath the surface of the soil for such a purpose?

I would not have you infer from these remarks that I am despising or intending to speak contemptuously or lightly, or cast sidelong glances of jealousy on those admirably trained, highly gifted gentlemen, who have most nobly and most generously stepped forward on these occasions to elevate the farmers' calling, which has too often been performed in the old mill-horse round of duty and plodding labor, too often, as it were, taking their steps in the dark. I tender to them my sincere thanks and unfeigned gratitude for their endeavors to place us in the scale of upward progression and intellectual improvement. But I would wish to awaken my brother farmers to a sense of the unthinking method in which many pursue their labor.

It is time for agriculturists to awaken from their slumbers and have them assume their proper position, and be able to stand up and advocate their own cause without stammering, or having to blush for their deficiency in explaining their views and practical observations in their business, and the best mode of profitable improvement. As a class, do they keep posted up on their own interests, by observing the quick movements of the market, as the other classes do? Do they not lack association for the purpose?

The business of agriculture is the most honorable and most ancient of which we have any record. It is recorded by Moses, the first historian and lawgiver, that our first parents were farmers. Adam was a farmer; but I believe Eve was a dress maker, the leader of fashion in her day. However, I rather doubt if she would be popular at the present time—perhaps the style would not suit this age. Their sons tended the flocks and tilled the field.

It is sometimes said the farming business is laborious, but this is nothing new, for our earliest relations had notice given them they should earn their bread by the sweat of their brow, and as

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far as I know, that command has been literally fulfilled, whether satisfactorily or not to those concerned. However, the business of tilling the soil seems to be an indispensable one, and the most general occupation of the human race. It has been said that seven-eighths or more are engaged in it; but it cannot stand independently alone. It is closely and most intimately connected with the mechanical and manufacturing interests, commerce and the arts. They cannot exist without support from each other. But agriculture is acknowledged to be the basis on which the superstructure of all the others must rest. The great staples of wool and cotton with which we are so comfortably clothed, are the products of the soil.

The silkworm, with her gaudy and glittering productions, so apparently necessary to adorn and grace *the angelic form of woman*, the last and best created gift of God to man, is a part of the same continuous system, whose sustenance is derived from the same source. The mechanic is necessary to our business; we need his tools and implements to till the ground. It is by his untiring skill and perseverance that we are furnished with those highly improved labor-saving implements and machines now so abundant everywhere, to lighten the heaviest toils of the husbandman with rapidity and ease. To the mechanic the ladies are indebted for the many varieties of sewing machines now in use to assist them in their never ceasing toil in making the various articles of apparel so necessary to our comfort. I trust the time is not far distant when the expense will be lessened to bring them within the reach of all classes.

The business of manufacturing is closely connected and identified with the cultivation of the soil. Who, but the mechanic and the manufacturer, has wrought such a change in price in the beautiful and cheap fabrics now within the reach of all classes, which royalty itself could not obtain but a few generations past. Look at the lessened cost of production between the prices of this time and the past. Many of you can remember the high prices paid for those articles; the common sheeting and shirting, varying from six cents to one shilling per yard, you well know could not be bought for less than three or four times that amount, before they were manufactured here, when you were dependent on the old plan of hand labor or foreign manufacturers, who demanded and obtained their own prices because there was no competition to prevent it. We ought to foster and encourage as

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far as consistent, those establishments amongst us. Would it not be beneficial for us all in the end? Every new branch, or increase of commercial, mechanical or manufacturing prosperity, is also an auxiliary. It gives a fresh impulse to agriculture. Their mutual interests are indissolubly connected: they are as so many new links in the chain which binds us together in the social compact. But agriculture is the great lever which gives motion to the whole mass; it furnishes the bread of life to all. Then if this is true that we are all so entirely dependent on the earth for everything that is necessary for our existence, as we surely are, only reflect if mother earth should withhold and refuse her supplies for one annual round of seasons, what would be our condition? Why, we should, as well as all animal life, perish from want. How many blessings we have to be thankful for to the Giver of all good! How seldom is this ever seriously considered! What ungrateful beings we really are! It belongs to us as a duty to make every effort for improvement; we must study deeply, and reflect which is the best system to accomplish this. As our soils become older, they will not produce as bountifully as when they were new—the fertility has been drawn from them. We must endeavor to renovate them by a better system. We must plow less surface, and plow it deeper and better. We must remove the surplus moisture from the surface, by draining thoroughly, which is equivalent to deepening the soil. It draws off and keeps the stagnant waters from injuring the tender roots. The rays of the sun can then penetrate more deeply, and warm the soil and nourish the roots of the plants, which will also descend deeper, and produce better by having stronger and more healthy fibres extended in search of fresh stimulants, which are offered by the beneficial change that is effected. In undrained lands of a clayey and retentive nature, or, indeed, any other with a hard and compact subsoil, the surface soil is soon filled and saturated with heavy rains, the surplus of which flows off into the streams, and not only carries off the best fertilizing qualities of ammonia which it contains, but also floats away with it the best soluble qualities of the manures which had been placed in it previously at great expense. When it is properly drained, the surplus rain then rapidly settles through the porous soils in a pure state, leaving its own fertilizing qualities in the soil through which it passes, in connection with what was previously deposited there. Then every additional fertilizer which is added is available to the ful

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lest extent, for the water settles down to the level of the drains, and instead of being injurious by an excess of moisture at the surface, it is held in reserve in larger quantities, available for the use of the crops in time of a drouth, and is brought to the surface by nature's laws of capillary attraction and evaporation. It prepares the land for a better rotation of crops, it prevents the destruction of winter wheat by frost; clover and all other grasses will be sweeter, more vigorous and durable; the soil is more easily tilled, because it is lighter and more friable.

To be successful we must be intelligent, and perfectly understand the position we occupy; we must study nature's laws, and observe closely cause and effect; we must understand the soil we till, what are its qualities and what is lacking in its composition to make it fertile; we must endeavor, by constant attention, to keep up its fertility by all judicious means, and by not overtasking its capabilities.

It ought to be our study to make our business both profitable and a source of pleasure to the mind; to be profitable in the future we ought to keep progressing upwards; we might by a system of excessive cropping, perhaps realize an annual profit for a term of years, but when the soil became exhausted, what would be the consequences that would assuredly follow to those who occupy it? As the crops decrease the noxious weeds increase, it is more labor to till it as it becomes poor, the rich decayed vegetable matter, which made it profitable and productive, are extracted, and it is left in a hard and compact condition, requiring greater exertion to redeem it to a proper state fit to receive the seed which is sown upon it, in addition to the extra labor which is required to eradicate the troublesome weeds which have increased and taken possession, and cannot be exterminated without unremitting toil and anxiety for quite a term of years. What would soon be the condition and character of any part or section, if all should follow such a course of impoverishment of the soil, and strip it of its valuable timber, even trees of the most beautiful form, which should be left both for shade and ornament. Such a place would soon lose character and value, and literally become a desert. Those seeking to purchase desirable situations, would naturally avoid them. On the other hand it would be one of the greatest of pleasures to live where all are exerting themselves to improve their homes and neighborhood, and by all that can beautify and adorn, and make life desirable. Such a course would assuredly

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secure the attention of those seeking investment, who well understand these landmarks of worth and intelligence.

When population is thinly scattered over a large surface of new and fertile soil, where abundant crops are easily raised, a very defective system, with but comparatively little labor, will produce an abundance for all their wants, and leave a surplus to spare. But when the population becomes more dense, and the soil from whence this supply has been derived, has become partially, or nearly impoverished, it becomes necessary to use an improved system in order to obtain the amount required to support them with comfort, and make it profitable to those so employed, or emigrate to other new and fertile soils. In consequence, a better system has been gradually progressing. It is comparatively but a short time since the science of chemistry has been applied to agriculture and soils, the laws of nature which govern them in producing the different results. It has opened a new field for investigation, and gives us a clearer view of what is required to keep up the productiveness of the soil, from which we derive our very existence. If we will but study and observe those principles, we need not err so much in our calculations as we have done heretofore. The means of preserving or restoring the fertility of his land is one of the most interesting, all-important and essential subjects that the agriculturist has to study.

And in order that we may not labor to a disadvantage, I again repeat, it is highly necessary we should thoroughly understand what are its different properties, and if any deficiency exist, know what to apply in the most economical way.

All who have in the most unthinking manner observed the soil, know that the earthy parts are composed of three principal ingredients, viz., sand, clay and lime, but they must also have a certain proportion of other materials mixed with them, such as are contained in the nature of the grass, grains, or plants which we wish to cultivate; or our labor will be in vain, or only obtain a small return. Those things can be ascertained if a correct analysis is made; there will be found to be in them a given quantity of potash, soda, magnesia, silica, sulphuric acid, salts, and other properties which are called inorganic, in the language of the chemist.

And according as they predominate in the soils with a proportion of organic or decayed vegetable matter, they are to a cer-

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tain degree fertile, or tending to sterility and barrenness, if those qualities are wanting. Then if we only understand those things correctly we can act intelligently, for instance, if they have already enough of organic, i. e., decayed vegetable matter, adding more will only be an injury to a grain crop by producing too much growth of straw, is apt to be lodged and injure the yield, besides the loss of labor and material used; while if some other quality which was lacking, it might be lime, ashes, phosphates, that is bone earth, salt or other things which are needed had been applied, perhaps for the same outlay of labor or expense, or it might be less, it would have perfected the ear, and been the means of giving a larger increase of a far superior quality. Thus we can see it is as highly necessary that the agriculturist should be an educated, intelligent man, and is as essential to his prosperity, as it is to any other profession.

But I must confess I am no chemist and therefore incompetent to perform those investigations, and know but little of the laws which govern the productiveness of the soil. We may, however, have considerable light thrown on the subject by experimenting on a small scale, with such as lime, salt, phosphates, by applying bones, &c.

It has been made known to the world, by a few enlightened, wealthy individuals in England and Europe, that by understanding and applying this knowledge, they have in many instances more than doubled the productiveness of the soil. It is not necessary for me here to give their names; they are familiar to the world. I have known instances where the soil was apparently good, but proved to be wanting in phosphates, salt, &c., and was unproductive, when a crop of oats would hardly pay the expense of plowing, seed and harvesting, and when seeded, the grass would barely cover the ground. But by the application of about twenty bushels per acre of bone dust, mixed with about twice the quantity of ashes and refuse of the sinks of the cities, salts, &c., at the expense of from twelve to fourteen dollars per acre, drilled in with the seed of turnips, and the crop it produced consumed by sheep on the ground, it has yielded twenty-five or thirty bushels of wheat to the acre, followed by luxuriant crops of clover; and by repeating the process, increased the value of the land six or eight dollars or more per acre annually. This shows the necessity of understanding our business intelligently.

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You may find what exertions England is making to improve her agriculture by examining their statistics.

In 1827, 248 vessels entered the one port of Hull carrying 17,018 tons of bones, and in 1835, the importation into the same port had increased to 25,700 tons. In 1837, the total value of bones imported into that country was $1,273,000, and the home supply was estimated at nearly two and a half millions of dollars. I would not have you infer from these remarks, that we here must try to follow the same rule of cropping by the turnip system, notwithstanding what some theorists may say. Our climate is not suitable for such a course of improvement, and it will not do to attempt it.

But this is not the time or place to enter into minute details on the system of improvement. I can only throw out a few hints and ideas, hoping they will induce other and more able minds to improve them.

Is it any wonder that the agriculturists of Great Britain are so celebrated for their almost fabulous yields of wheat and other grains, when they ransack nearly the whole habitable globe for fertilizers? They annually import thousands of tons of guano from the Pacific and other places. Even the bones which were crushed in this town, and those that were collected for that purpose have been sent to New York, and shipped to England, as their value was not appreciated in this locality. This ought not to be the case. If it is profitable to them, after the transportation across the Atlantic, and then at considerable expense shipped into the interior, will it not pay to use them here? Is not this the way to deprive our soils of their richest qualities, which ought to be returned to them?

It would be wise to look at these things in season, or as sure as time rolls on, our lands will become exhausted, and consequently depreciated in value. See the enormous quantities of grain which are annually extracted from our soils, and sent to other parts of the world, and nothing returned as an equivalent. We often hear it said that it is more difficult to raise large crops, that they do not yield as well as they formerly did; can it be reasonably expected otherwise, if we really consider how repeatedly we take crops from large breadths of land, which are extracting rapidly the most vital qualities from it? It may perhaps be asked of me, Why don't you yourself set us a good example? Well it is easier to preach than to practice any doctrine. I must

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plead guilty (improper habits are sometimes contagious,) and tell you as the parson did who preached excellent sermons, but occasionally indulged a little too much, and when he was reproved, replied: "You must not do as I do, you must do as I tell you."

It must be our most earnest purpose to press on the scale of improvement. I cannot for a moment doubt or think that the great American mind will be contented to remain long behind the old world in the application of science to agricultural progression; but will even push forward, into still further and greater investigations, which others have not yet penetrated or discovered; we are but just entering on the vast field of practical improvement.

Have we not outdone all other countries in improvement in complicated machinery of almost every description? In the great struggle for supremacy in perfection of models in vessels, in sailing—have not our clipper ships almost outstripped the wind? Then let our motto be, like the motto of our great State, "Excelsior"—still higher. The combination of chemistry and geology, if properly understood, will teach us the course we ought to pursue to reach perfection. It has been reserved for the age in which we live to be developed. We have seen the giant strides in improvement which have been made within the last quarter of a century. But what progress may we not expect in the same space of time following the present, with those improvements before us for our guide.

Some perhaps think that we have arrived at perfection—such wonders have been wrought by science, that nothing more remains to be done. We have now called in the mighty agency of steam, and have its almost unlimited power at command. In the telegraph, we have controlled the lightning's speed, and made it subservient to the will of man, to convey his thoughts and wishes to the ends of the earth, annihilating time and space.

This is only the beginning, this but the entering wedge of what the combination of science and chemistry will develop—what the present generation will probably yet live to see.

The study of these branches should be introduced into our public schools, and educate the future agriculturists in these principles, and prepare them to fill their station understandingly and profitably. There is one thing I would wish to say to young men; it is too often the case, that farmers' sons, after receiving their education, think other business is better than their own, or

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at least more genteel and fashionable, and are inclined to leave the farm, and find afterwards they have erred in their judgment.

They have, perhaps, the idea that it is disgracing to be seen laboring on the farm, and unworthy of notice by a man of taste, education and refinement; perhaps they think knowledge is not necessary to the farmer, that they can turn it to more profit, with greater ease, in some of the trades or professions, and leave a certainty for an uncertainty; a few will always succeed, but the greater number are apt to find out their mistake when too late to retrace their steps. Perhaps in this age of style and fashion, some of the young ladies of the farm, and others who dare not soil their hands, in their opinion, will refuse them if their hands are hardened by toil, or their countenances somewhat browned by the rays of the sun, and will say no, if they pop the question. Well, young men ought not to be offended—let them say no. It is their only privilege; you surely would not deprive them of it—they cannot always say yes. Perhaps they, as well as you, may some day find farming is the safest, and in the end most comfortable, and that labor is more conducive to a good appetite, a good, vigorous constitution, and the enjoyment of health, than languishing at ease, on downy cushions, from morning till night, which has a tendency to enfeeble the system and shorten life. I am aware this advice is unsolicited, perhaps not thankfully received, and probably will not have much attention paid to it.

I would wish to make a few remarks regarding fairs for the sale of stock of all descriptions in this country. In England they have regular fairs established at certain times of the year, in all the larger places and many of their villages—annually, semi-annually or quarterly, besides such as are held monthly, semi-monthly and weekly, which are named markets. The time of the fairs are well known by all classes—they are of great convenience and importance to the farmers and dealers.

Those who have stock for sale, and need the ready cash for any purpose they may want, can always sell at the time's prices by taking them to the fair, some of which are always within reach of a few miles. Some of them are principally for fat stock, where those wanting them meet to get their supply, and can be accommodated with the sort and size they want. At other times, such as the annual, semi-annual and quarterly, they are for stock of all descriptions, where thousands and tens of thousands of

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cattle and sheep are offered for sale—sometimes 50,000 head of cattle, and 70,000 sheep, besides immense numbers of horses of all descriptions, sorts and sizes, from the ponderous dray horse to the most diminutive pony.

There buyer and seller meet, and make the exchange—sometimes nearly all are sold. I have attended where 60,000 sheep have been sold in a day. The exact number is ascertained at the gates of the field where they are exhibited, those sold paying a certain toll as they pass out at the gates, for the use of the field; those not sold are exempt. If we could have such arrangements here, we need not be under the necessity of keeping stock longer than is suitable, and then could depend on meeting any demand readily and promptly. This is a regulation which could not be otherwise than profitable and convenient, if once established here. I have no doubt, if we were once accustomed to this system, and had practical experience of the vast benefit it would confer on both seller and buyer, we would not by any reasonable means be induced to give it up. Our location here would be a fine one for such purposes. It is well known we have one of the most inviting and attractive places that can be found anywhere. Travelers and others who have visited here have often expressed their admiration of the placid waters of the lake, and its charming landscape and scenery, the tasteful dwellings and embellishments that encircle its shores, many of them unsurpassed in any other section or locality.

One of Napoleon's officers, who traveled through in 1830, and spent the night here, was really enchanted with the natural beauty of the place. He had served under Napoleon through all his campaigns in Egypt, Germany, Italy and Russia, and remarked that in all his travels he had not seen a place where nature had done more to adorn it. That if it were in Europe, its banks would be covered with the parks and mansions of the nobility and wealthy classes, who would exclude us farmers from its shores, as its value would be so enhanced it would not be profitable for us to hold it.

Let us then freely indorse the character it has obtained, and by all honorable efforts add to its lustre. From the appearance of what we see here, we cannot think otherwise than that we are earnestly engaged in improving the advantages which are within our reach. The thousands that are here assembled is evidence that a spirit of emulation, free and open to all, is the prevailing

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feeling and sentiment, and can honorably compete for the reward of merit accorded to those who excel. We hope and do not doubt it will induce still more friendly competition and pleasing intercouse with old friends, and be the means of introducing us to many more new and pleasing acquaintances. The implements shown are excellent, though not numerous, through the unfavorable weather.

We have here, as a whole, a splendid show of fine stock of the best improved breeds, and they are annually increasing, that tells us the right spirit is awakened in the right place. We are deeply indebted to those public spirited individuals, Mr. Marks and Mr. Stone, who, at a great inconvenience to themselves, so generously and largely contributed to our exhibition, by their splendid animals, such as are rare to be found, and not to be excelled, and which I hope will be properly noticed elsewhere by those able to do them justice.

To the citizens of the adjoining towns, and all others who have joined with us and assisted in this our annual exhibition, we offer our warmest and sincere thanks.

We owe much to the ladies who have contributed so largely to decorate our hall with their splendid specimens of taste and elegance, and all of those who have favored us with their presence, which has added so much to the enjoyment on this occasion. And let me say, in sincerity, that in all our daily wants we cannot do without you. The tender sympathies of your affectionate nature are always ready to relieve distress. Was it not a female Pocahontas (can you call her a savage?) who warded the death blows from the head of Captain Smith? Who but woman pitied and cared for that adventurous traveler in pursuit of science, Mungo Park, on the burning sands of Africa, and wet his parched and feverish lips in his dying moments? Without your presence life would be a blank, home only be a desert. Who but woman attends to our earliest wants, and soothes the pillow of death?

Ladies, we tender you our unfeigned gratitude, and hope ever to be worthy of your presence, and when the next annual season returns, may we meet again with unalloyed pleasure, with a still higher aim at improvement and enjoyment.

SKANEATELES, N. Y., *January* 4, 1862.

The old organized Farmers' Club of Skaneateles, after a successful career for six years, by disagreements and a heavy

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debt, have become, during the past year verging towards annihilation, to prevent which, at the last annual meeting a new constitution was substituted, agreeably to the statute provided. The following is the 7th report of the late secretary, which I copy correctly from the original. I do this, as I understand it to be intended to give you portions only of it:

Gentlemen of the Farmers' Club:

When I made my last report I little thought I should be called on to make another, but so it is. Though union and disunion have endeavored to crush each other, yet we exist not only as a society, but I trust as a nation. The present state of affairs at Washington calls loudly on us to be more zealous in our proceedings, to study how to make our lands more productive and with less labor than heretofore.

I am sorry to see, and more grieved to say that the past year shows a great falling off in membership. Why, I dare not say, but to lose one-third in a single year, shows something defective. Fewer meetings have been held than usual, and far worse attended than heretofore. Twelve meetings for discussions only have been held; the remaining eighteen were meetings of the board.

Our fruit, floral and horticultural exhibitions during the past summer fully equalled, if they did not surpass, those of former years. They were largely attended by our citizens, and a generally expressed sentiment of regret prevailed "that they were not oftener repeated."

Our annual fair also displayed a smaller number of entries than usual,* but the animals, &c., were of a greatly improved quality to any before exhibited at our fairs. The same improvement was observable in all departments.

To one thing I wish to call attention: I am fully convinced it is bad policy to withhold attractive show bills—bills, not stereotyped ones, but varied both in wording and display—a something that will give it a new appearance yearly.

The library during the past year has had no work of importance presented to it, but from the Com. of Patents. I have written repeatedly to Mr. Sedgwick for some copies of the Patent Office Reports, but not even a reply is made. The publications received are principally pamphlets from Senator Monroe, J. Terwilliger, Esq., and a valuable report from Mr. S. Hitchcock,

* 763 altogether, and 20 Diplomas, or not over 30, awarded.

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Stockton, California; also a bound New Yorker, from D. D. T. Moore. I have heretofore called your attention to the advisability of having the loose pamphlets put into condition to preserve them and so make them of use.

I am sorry to say that the first volume of Perry's Voyages to Japan came in in so dilapidated a condition lately, as renders it useless until repaired or rebound.

Gentlemen, I think I have pointed out such things as need to be attended to. Heretofore I have suggested means wherein benefit and improvement would be derivable, but in all instances the same has been received either silently or treated with ridicule. I therefore decline further suggesting, and resign the office conferred on me in 1850, as secretary of the Skaneateles agricultural association and that of secretary to the Farmers' Club, Skaneateles, with a clear conscience that, however I may have acquitted myself, my intentions and desires have been the good of the public, especially the good of this club. I cannot close without reiterating my thanks to you for your kind forbearance with my many failings, and I feel especially grateful that I have had the assistance of able helpmates in the performance of my arduous duties. To our late treasurer I feel under great obligations for his assistance and advice. I could signalize others, but forbear. Once more and finally I bid you farewell.

W. M. BEAUCHAMP.

UNION AGRICULTURAL SOCIETY.

SPRINGVILLE, *February* 20, 1862.

B. P. JOHNSON, *Secretary, etc.:*

SIR—This society was organized about ten years ago, and has held an annual fair every year since, generally at this place. It has been held here for the last four years. It has continued to grow until it now embraces twenty-four towns in the adjacent parts of Erie, Cattaraugus and Wyoming counties. The receipts at the Fair range from $350 to $500, which is expended in the payment of premiums and necessary expenses. The society is out of debt, and we have always paid our premiums in full.

The society's grounds near this village are conceded to be as fine and as well adapted to the purposes of an agricultural fair, as any that can be found anywhere. Our show of cattle is generally large, and always fine. Last fall we had a fine exhibition of

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blooded stock, sheep and horses—as good, we believe, as has ever been shown in this vicinity at any of the county fairs. We also had a large show of dairy products, with many competitors, and a good exhibition of vegetables.

But perhaps the finest feature of our fair was the ladies' department. In this, we do not fear to challenge comparison with any society of our size. It was crowded with the productions of female skill and taste, and reflected great honor upon the ladies who directed it.

The attendance was large from all the surrounding country, and the fair cannot have failed to be productive of much benefit.

On the whole, it passed off pleasantly, occupying two days, the 18th and 19th of September. The last day we had a very able and interesting address from Hon. James Sheldon, our County Judge.

J. B. SAXE, *Cor. Secretary.*

ULYSSES, COVERT AND HECTOR.

B. P. JOHNSON, Esq.,

Secretary N. Y. State Ag. Society:

DEAR SIR—The annual meeting for the election of officers of the Union agricultural and horticultural society of Ulysses, Covert and Hector, was held in Trumansburgh, January 11, 1862, President Hon. T. Boardman in the chair.

The secretary read the record of the transactions of the society for the past year, which was approved.

The president then read a very interesting address, giving a history of the organization and progress of the society, referring to the difficulties which had been encountered, making many pertinent suggestions, and concluding by demonstrating that the perpetuity of the society was demanded as a "public necessity."

The president also stated that the receipts, from all sources for the three years, since the organization of the society, had been $3,585 16

The expenditures for the same time had been..... 3,546 37

Leaving a balance in the treasurer's hands of... $38 79

Besides property and permanent improvements, such as Floral Hall, clerk's and treasurer's office, &c., amounting to about eighteen hundred dollars ($1,800).

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Unfortunately for the interests of our society, the national fast day occurred on the second day of our fair, and on the third we experienced one of the most incessant and drenching rain storms ever known in the county, lasting during the entire day. But notwithstanding the unfavorable circumstances under which the fair was held, our receipts were nearly eight hundred dollars ($800).

The exhibition was highly creditable in every respect, and far superior to any ever made by the society.

All the details in the management of the exhibition were carried out in a manner gratifying to all, and the interest manifested on the part of the members of the society and the public generally shows a universal determination to make our next fair still more attractive and interesting than any we have yet held.

The annual address was delivered by Hon. F. M. Finch, of Ithaca, and was one of great merit and full of instruction.

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TREASURER'S REPORT.

LUTHER H. TUCKER, *Treasurer, in account with the New York State Agricultural Society*, 1861.

RECEIPTS.

Cash on hand from last account	$1,792 71
Memberships at annual meeting	48 00
Life memberships during the year	70 00
State appropriation	700 00
State appropriation for Dr. Fitch	1,000 00
Interest	11 12
Local committee at Watertown	800 00
Receipts at Watertown Fair, including $106 for life memberships	7,900 40
	$12,322 23

DISBURSEMENTS.

Premiums at winter meeting	$576 00
Expenses at winter meeting	43 54
Premiums and expenses of previous fairs	122 50
Salaries and traveling expenses	2,865 13
Salary of Dr. Fitch	1,000 00
Incidental expenses	126 93
Postages	177 67
Library and Museum expenses	82 29
Printing, stationery, &c.	385 28
Premiums, &c., Watertown Fair	4,722 09
Expenses Watertown Fair, for gate-keepers, day and night watch, police, laborers, clerks in offices, &c.	1,122 31
For superintendents and all other fair expenses	955 80
Cash on hand to new account	142 69
	$12,322 23

We hereby certify that we have examined the account presented and the vouchers accompanying the same, and find the same in all respects just and true.

February, 1862. SIGNED BY FINANCE COMMITTEE.

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Journal Highland and Agricultural Society, Scotland, No. 76. J. Hall Maxwell, Secretary.

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AWARD OF PREMIUMS.

TWENTY-FIRST ANNUAL FAIR, HELD AT WATERTOWN, SEPTEMBER, 17, 18, 19, 20, 1861.

CLASS I.—CATTLE.

No. 1. Short Horns—Bulls.

Three years old and upwards:

1st premium, Cass & Butts, Chittenango, Madison county, "Apricot's Gloster" ..... Diploma and $20

2d premium, Elihu Griffen, Washington Hollow, Dutchess co. 15

3d do Ambrose Stevens, Batavia 5

Two years old:

1st premium, A. B. Conger, Waldberg, Rockland co., "Loyal Duke" 20

2d premium, A. M. Underhill, Clinton Corners, Dutchess, "2d Duke of Athol" 10

3d premium, J. B. Garrett, Salina, "Ruby's Oxford" 5

One year old:

1st premium, Thomas L. Harison, Morley, St. Lawrence co., "Hotspur" 15

2d premium, Brodie, Campbell & Co., Ellisburgh and N. Y. Mills, "Iron Duke" 10

3d premium, A. M. Underhill, Clinton Corners, "Zenith" ... 5

Bull calf:

1st premium, J. B. Garrett, Salina, "Duke of Salina" 6

2d do T. G. Aycrigg, Passaic, New Jersey, "St. Valentine" ..... Trans. and 3

3d premium, A. Pellett, Norwich, Chenango co., "1st Duke of Plymouth" ..... Trans.

No. 2. Short Horns—Cows.

Three years old and upwards:

1st premium, George Butts, Manlius, "Bright Eyes 6th" Diploma and $20

2d do George Butts, Manlius, "Olivia" 15

3d do J. B. Garrett, Salina, "Flora" 5

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Two years old:

1st premium, Thomas G. Aycrigg, Passaic, New Jersey, "Mazurka 8th" $20

2d premium, Thomas G. Aycrigg, Passaic, New Jersey, "Constance 3d" 10

3d premium, Thomas L. Harison, Morley, St. Lawrence co., "Baroness" 5

One year old:

1st premium, A. B. Conger, Waldberg, Rockland county, "Agatha" 15

2d premium, Thos. G. Aycrigg, Passaic, New Jersey, "Magdalen" 10

3d premium, J. B. Garrett, Salina, "Red Ruby" 5

Heifer calf:

1st premium, George Butts, Manlius, "Silky" 5

2d do H. Cass, Chittenango, Madison county, "Ruth Ann" ..... Trans. and 3

No. 3. Devons—Bulls.

Three years old and upwards:

1st premium, George Short, Madrid, St. Lawrence county, "Elgin" ..... Diploma and 20

2d premium, R. & M. Goulding, Pamelia Four Corners, Jefferson county 15

3d premium, N. T. Foriman, Woodville, Jefferson county, "Yankee Blade," (if pedigree is produced) 5

Two years old:

1st premium, Geo. Webb, Watertown, "Blucher" 20

One year old:

1st premium, A. B. Conger, Waldberg, Rockland co., "Frank Quartley 2d" 15

3d premium, Geo. Webb, Watertown, "Red Jacket" 5

Bull calf:

1st premium, A. M. Rogers, Watertown, "McClellan" $5

No. 4. Devons—Cows.

Three years old and upwards.

1st premium, Ambrose Stevens, Batavia, "Lovely 3d," Dip. & $20

2d do Ambrose Stevens, Batavia, "Lovely 10th," 15

3d do A. B. Conger, Waldberg, Rockland county, "Virginia" 5

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Special premium equal to 3d, recommended to A. M. Rogers, Watertown, for Devon cow.

Heifer, two years old:

1st premium, A. B. Conger, Waldberg, Rockland county, "Queen of the May" $20
2d premium, Ambrose Stevens, Batavia 10

Heifer, one year old:

1st premium, Ambrose Stevens, Batavia 15
2d do George Webb, Watertown, "Maggie" 10
3d do A. M. Rogers, Watertown 5

Heifer calf:

2d premium, George Webb, Watertown, "Fairy 3d," Trans. & 3
3d do George Webb, Watertown, "Fancy," ..... Trans.

No. 5. Herefords.

Bull, three years old and upwards:

1st premium, E. Corning, Jr., Albany, "Washington," Dip. & $20
2d do H. Bowen, Sennett, Cayuga county, "Don Juan," 15

Bull, two years old:

1st premium, H. Bowen, Sennett, "Duke of Orleans" 20
3d do H. Bowen, Sennett, "Popinjay" 5

Bull, one year old:

1st premium, E. Corning, Jr., Albany, "Meteor" 15
2d do M. C. Remington, Sennett, Cayuga county, "Blondin" 10
3d premium, H. Bowen, Sennett, "Young Conqueror" 5

Bull calf:

1st premium, E. Corning, Jr., Albany, "Taurus" 5
2d do M. C. Remington, Sennett ..... Trans. and 3

Cow, three years old and upwards:

1st premium, E. Corning, Jr., Albany, "Cora 3d" .. Dip. and 20
2d do E. Corning, Jr., Albany, "Princess" 15
3d do H. Bowen, Sennett, "Myrtle" 5

Heifer, two years old:

1st premium, E. Corning, Jr., Albany, "Victoria 5th" 20
2d do E. Corning, Jr., Albany, "Matilda" 10
3d do M. C. Remington, Sennett, "Delicate" 5

Heifer, one year old:

1st premium, E. Corning, Jr., Albany, "Prize" 15
2d do E. Corning, Jr., Albany, "Rose" 10

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3d premium M. C. Remington, Sennett, "Beauty" $5

Heifer calf:

1st premium, E. Corning, Jr., Albany, "Marchioness" 5

2d do E. Corning, Jr., Albany, "Victoria 6th," Trans. and 3

No. 6. AYRSHIRES.

Bull, three years old and upwards:

1st premium, T. H. Anthony, Pamelia, Jeff. co., Dip. and $20

2d do Jas. Thompson, Ballston Spa, "Sir Walter," (broke to drive single) 15

3d premium, Geo. Morton, Morton, C. W., "Highland" 5

Bull, two years old:

1st premium, J. C. Deuel, North Gage, Oneida county, "Dandy Jim" 20

2d premium, S. D. Hungerford, Adams, Jefferson county, "Tiger" 10

3d premium, George Morton, Morton, C. W., "Rob Roy 2d," 5

Bull, one year old:

1st premium, George Morton, Morton, C. W., "Prince of Wales" 15

2d premium, Brodie, Campbell & Co., Ellisburgh and New York Mills, "Dr. Hornbuck" 10

3d premium, George Morton, Morton, C. W. 5

Bull calf:

1st premium, Geo. Morton, Morton, C. W., "De Long" 5

2d do S. D. Hungerford, Adams, Jefferson county, "Beech" .....Trans. and 3

Cow, three years old and upwards:

1st premium, S. D. Hungerford, Adams, "Lady Ayr," Dip. & 3

2d do Brodie, Campbell & Co., Ellisburgh, "Lady Douglass" 15

3d premium, George Morton, Morton, C. W. 5

Heifer, two years old:

1st premium, Jas. Thompson, Ballston Spa, "Lassie" 20

2d do George Morton, Morton, C. W. 10

3d do George Morton, Morton, C. W. 5

Heifer, one year old:

1st premium, Brodie, Campbell & Co., Ellisburgh and New York Mills 15

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2d premium, S. D. Hungerford, Adams, "Lilie Dale 2d" $10
3d do S. D. Hungerford, Adams, "Challenge 3d" ... 5

Heifer calf:

1st premium, Brodie, Campbell & Co., Ellisburgh, &c..... 5
2d do Geo. Morton, Morton, C. W. .....Trans. and 3

No. 7. Alderneys or Jerseys.

Bull, three years old and upwards:

1st premium, A. B. Conger, Waldberg, Rockland county, "Ivanhoe" .....Dip. and $20

Bull, one year old:

1st premium, B. G. Morss, Red Falls, Greene co., "Thorndale" 15

Cow, three years old and upwards:

1st premium, B. G. Morss, Red Falls, "Dutchess," Dip. and 20
2d do B. G. Morss, Red Falls, "Flint"..... 15

Heifer, two years old:

1st premium, A. B. Conger, Waldberg, Rockland county, "Lady Jersey 2d" 20

Heifer calf:

1st premium, B. G. Morss, Red Falls, Greene co., "Beauty," 5

No. 8. Grade Cattle—Cows.

Three years old and upwards:

1st premium, Green & Mather, Belleville, Jeff. co., Dip. and $20
2d do T. V. Maxon, Adams, Jefferson county..... 15
3d do S. T. Smith, New York Mills, Oneida county . 5

Heifer, two years old:

1st premium, A. M. Underhill, Clinton Corners, Dutchess co. 20
2d do Amos F. Wood, Woodville, Jefferson co. 10
3d do Norman Gowdy, Lowville, Lewis county..... 5

Heifer, one year old:

1st premium, A. M. Underhill, Clinton Corners, Dutchess co. $15
2d do Amos F. Wood, Woodville, Jefferson county.. 10
3d do S. T. Smith, New York Mills, Oneida county.. 5

Heifer calf:

1st premium, Amos F. Wood, Woodville..... 5
2d do T. V. Maxon, Adams .....Trans. and 3

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MILCH COWS OF ANY BREED.

Milch cow, (Ayrshire):

1st premium, Brodie, Campbell & Co., Ellisburgh and New York Mills, "Red Rose"..... Diploma and $15
2d premium, Brodie, Campbell & Co., Ellisburgh and New York Mills, "Ayrshire Lass"..... 10

HOLLAND CATTLE.

A. Holbert, Goshen, Orange county, was awarded a discretionary premium for his Holland cattle..... 20

No. 9. WORKING OXEN, OVER FIVE YEARS OLD.

1st premium, Thomas Bryant, Watertown..... 15
2d do Isaac Brintnell, Watertown..... 10

No. 10. OXEN, FOUR YEARS OLD.

1st premium, H. C. Ryal, Copenhagen, Lewis county 15
2d do S. B. Tallman, Watertown..... 10

No. 11. STEERS, THREE YEARS OLD.

1st premium, A. G. Hall, Belleville, Jefferson county 10
2d do Isaac Brintnell, Watertown..... 8
3d do Dyer Washburn, Sacketts Harbor..Trans. and 3

No. 12. STEERS, TWO YEARS OLD.

Single yoke:

1st premium, Isaac Brintnell, Watertown..... 8
2d do Dyer Washburn, Sacketts Harbor..... 6
3d do C. B. Eastman, Woodville, Jefferson county, Trans. and 3

ONE YEAR OLD.

Single yoke:

1st premium, C. B. Eastman, Woodville, Jefferson county.. 6
2d do Amos F. Wood, Woodville..... 5
3d do James Whaley, Black River .....Trans. and 3
To boys under 16, training yoke of steers best, Jas. Whaley, Black River .....Diploma.
do do Joel Ives, Watertown.....Trans. and $2

The committee on three, two and one year old steers, would respectfully report that the competition in this class was very spirited, and will compare favorably with any exhibition in years past. For close matching, good training and docility, all were entitled to great credit; in fact, your committee found it some-

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what difficult to decide upon the relative merits of the different competitors. Your committee, in making their awards, were governed more by the close matching and fine handling of the animals, than by their weight and size—believing that the aim of good breeders is, to secure all those qualities that add to the value of the animal, not only for the yoke, but the shamble. We would add, that the farmers of Jefferson county have occasion to congratulate themselves upon the fine exhibition in the above class, as there was no competition from any other county.

J. M. STRONG, S. W. GUNN, } *Committee.*

No. 13. FAT CATTLE—STALL FED.

Ox, four years and upwards:

1st premium, Green & Mather, Belleville, Jefferson..... $12
2d do Green & Mather, Belleville 8

Cow, four years and upwards:

1st premium, William Elliot, Kingston, C. W. 10

Steer, three years old:

1st premium, G. V. Sackett, Seneca Falls..... 8

No. 14. FAT CATTLE—ON HAY AND GRASS.

Ox, four years and upwards:

1st premium, Isaac Brintnell, Watertown..... 10

Cow, four years and upwards:

1st premium, M. C. Remington, Sennett, Cayuga county.... 10

Heifer, three years old:

1st premium, M. C. Remington, Sennett, Cayuga county.... 8

SWEEPSTAKES—CATTLE.

Short horn bull, "Hotspur," Thos. L. Harison, Morley, St. Lawrence county.....S. Medal.
Short horn heifer, "Mazurka 8th," Thomas G. Aycrigg, Passaic, N. J. .....S. Medal.
Devon bull, "Frank Quartly 2d," A. B. Conger, Waldberg, Haverstraw .....S. Medal.
Devon cow, "Lovely 3d," Ambrose Stevens, Batavia..S. Medal.
Hereford bull, "Blondin," M. C. Remington, Sennett, Cayuga county .....S. Medal.
Hereford cow, "Victoria 4th," E. Corning, jr., Albany.S. Medal.
Ayrshire bull, "Niel Dow," S. N. Andrews, Gravesville, Herkimer county.....S. Medal.

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Ayrshire cow, "Bessie," S. D. Hungerford, Adams....S. Medal.
Alderney heifer, "Lady Jersey 2d," A. B. Conger, Waldberg, Haverstraw .....S. Medal.

CLASS II.—HORSES.

No. 15. For all work—Stallions.

Four years and upwards:

1st premium, B. B. Van Slyke, Earnestown, C. W., "Sir Charles".....Diploma and $20
2d premium, W. H. Whipple, Palmyra, "St. Lawrence 2d," 15
3d do C. Ainsworth, Antwerp, "Typo" 5
4th do H. M. Wright, Napanee, "Young Wild Deer," Youatt.

No. 16. Brood Mares and Foals.

Brood mare, (with foal at her foot):

1st premium, Norman Gowdy, Lowville, Lewis co.,..Dip. and $20
2d do H. N. Kimball, Rutland, Jefferson county 15
3d do L. Jacobs, Watertown..... 5
4th do Thomas Brown, Watertown.....Youatt.

No. 17. Horses of Morgan or Black Hawk Breed.

Stallion, four years and upwards:

1st premium, Chas. Barnard, Boston, Massachusetts. "Vermont" .....Diploma and $20
2d premium, H. Bacon, Mohawk, Herkimer county, "Young Ethan Allen" 15
3d premium, F. C. Oakley, Marcellus, Onondaga co., "Young Prophet" 5
4th premium, H. N. Kimball, Rutland, Jefferson county, "Eagle" .....Youatt.

Stallion, three years old:

1st premium, S. Jackson 15
2d do E. McAllister, Antwerp..... 10

No. 18. Draught.

Stallion, four years and upwards:

1st premium, M. L. Hungerford, Watertown, "Gold Wire," Dip. and $20
2d do C. H. Sprague, Fowler, St. Lawrence co..... 15
3d do S. Miller, Perryville, Clinton co., "Scotia"... 5
4th do N. Osborn, Lee-Center, Oneida county, "Young Clydesdale" .....Youatt.

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Pair of matched draught or farm horses:

1st premium, H. Blodget, Denmark, Lewis county..... $15
2d do E. S. Tallman, Brownville, Jefferson county... 10

No. 19. Thorough Bred.

Stallion, four years old and upwards:

1st premium, A. B. Conger, Waldberg, Rockland county, "Bayard"..... Dip. and $20

Special.

T. G. Aycrigg, Passaic, New Jersey, one colt two years old, "Boswith"—worthy of a prize, though none are offered for those of his age..... S. Medal.

Hon. Wm. H. Seward, Washington, D. C., Arabian horses in charge of Society, one stallion eight years old, imported Arabian. Committee awarded the highest commendation, being entered for exhibition only; one stallion three years old, an imported Arabian entered for exhibition only, and we award the highest praise.

No. 20. Three Years Old.

Stallion, three years old:

1st premium, E. Corning, Jr., Albany, "C. M. Clay," Dip. & $15
2d do L. Jacobs, Watertown..... 10
3d do W. S. Heustis, Adams, "Andrew Jackson"... 3

Mare, three years old:

1st premium, F. Stearns, Ellisburgh..... Dip. and 15
2d do J. P. Wilson, Watertown..... 10
3d do C. A. Bannister, Watertown..... 3
4th do C. L. Reed, Watertown, ... Dadd.

No. 21. Two Years Old.

Stallion, two years old:

1st premium, Jacob Brown, Fayette, Seneca co., "Young Texan Jim"..... $15
2d premium, Lovell Clark, Rutland, Jefferson co., "Young Abe Lincoln"..... 10
3d premium, O. D. Simmons, Watertown, "Andrew Jackson"..... Dadd.

Mare, two years old:

1st premium, Giles Parker, Adams Center..... $15
2d do S. Gifford, Watertown, "Topsy"..... 10
3d do John P. Wilson, Watertown ..... Dadd.

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No. 22. One Year Old—Colts.

One year old:

2d premium, W. P. Ball, Rutland, Jefferson county..... $5
3d do C. E. McCormick, Whitesville, Lewis co.....Dadd.

Mare:

2d premium, H. Parker, Troy..... $5

No. 23. Matched Horses—Not under 16 hands, for road or carriage.

Sixteen hands and over:

1st premium, Frank Wilson, Newfane, Niagara county..... $15
2d do Joshua Bailey, Cohoes, Albany county..... 10

No. 24. Matched Horses—for road or carriage.

Fourteen to sixteen hands:

1st premium, L. R. Powell, Holland Patent, Oneida co. $15
2d do R. J. Brown, Watertown 10
3d do G. D. Brown, Lowville, Lewis county.....Dadd.

Discretionary.

Span of Shetland ponies, S. D. Hungerford, Adams.....Dadd.

The committee have, with entire unanimity, awarded as above, and they desire to speak in terms of commendation of Mr. H. N. Kimball's dark bays; also of a span of bay mares belonging to G. J. Champlin, Watertown; but having no more prizes to bestow, we close as above.

B. E. BOWEN,
SIDNEY SLOCUM,
G. A. PLACE.

No. 25. Matched Trotting Horses—for the road.

1st premium, L. P. Dole, Watertown $15

No. 26. Geldings.

1st premium, J. C. Duff, Constableville, Lewis county..... $10
2d do J. H. Decker, Denmark, Lewis county..... 8

Discretionary.

Single gelding 4 years old, G. B. Beach, Watson, Lewis co., Trans.
Single pony, Mrs. C. Scripture, Watertown .....Dip.
Two geldings, very good, William Watts, Watertown ....Trans.

The judges are of opinion, in these two classes they should be divided into different classes, as for instance: horses suitable for

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heavy work ought not to be classed with roadsters or carriage horses. Each may have good qualities for the respective purposes for which they are adapted. For the want of such division, it is a difficult matter to do that justice the exhibitors have a right to expect.

THOS. BRIGGS, JR.,
HORACE CLAPP.

No. 27. SINGLE MARES.

1st premium, John Palmer, Hounsfield $10
2d do F. Stearns, Ellisburgh 8
The judges recommend a prize to A. M. Harris, Watertown, for single mare, she being equal to the 2d prize mare ....Dip.

No. 28. 3 YEAR OLD GELDINGS.

1st premium, O. F. Bowen, Lowville, Lewis county..... $6
2d do O. F. Bowen, Lowville, Lewis county..... 4
3d do Volney Woolworth, Champlain.....V. T.

No. 29. SINGLE TROTTING GELDING—IN HARNESS.

1st premium, O. Bort, Little Falls $10
2d do Gerrit Ives, Watertown 8
3d do J. H. Wakefield, Ellisburgh ..... Dip.
Special premium to boys under 18 years of age, (for the best trained colt under his own direction,) Master C. A. Bannister, Watertown 5

No. 30. JACKS AND MULES.

Best pair of mules, T. G. Aycrigg, Passaic, N. J..... 15

CLASS III.—SHEEP.

No. 31. FAT SHEEP.

Long wooled, over two years.
1st premium, Wm. Elliott, Kingston, C. W. $5
2d do John Snell, Edmonton, C. W. 3
3d do Wm. Elliott, Kingston, C. W. .....Morrell's Shep.

Under two years:
1st premium, Brodie & Campbell, Ellisburgh..... 5
2d do James F. Converse, Woodville..... 3
3d do Wood & Eastman, Woodville.....Morrell's Shep.

Middle wooled, over 2 years:
1st premium, O. Howland, Auburn..... 5
2d do O. Howland, Auburn..... 3

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Under two years:

1st premium, Green & Mather, Henderson, Jeff. co..... $5
2d do Green & Mather, Henderson..... 3
3d do R. H. Avery, Wampsville, Madison county, Morrell's Shep.

Cross Breed, over two years:

1st premium, James F. Converse, Woodville..... $5
2d do Wood & Eastman, Woodville..... 3
3d do R. H. Avery, Wampsville.....Morrell's Shep.

Under two years:

1st premium, Wood & Eastman, Woodville..... $5
2d do R. H. Avery, Wampsville..... 3
3d do Wood & Eastman, Woodville, ...Morrell's Shep.

No. 32. Long Wooled, Leicesters.

Buck, over two years:

1st premium, Simon Beattie, Woburn, C. W. $10
2d do Jurian Winne, Bethlehem, Albany county 8
3d do James F. Converse, Woodville, Jeff. co..... 5

Buck, under two years:

1st premium, Jurian Winne, Bethlehem..... 10
2d do John Snell, Edmonton, C. W. 8
3d do Brodie & Campbell, Ellisburgh..... 5

Pen five ewes, over two years:

1st premium, John Snell, Edmonton, C. W. 10
2d do Wood & Eastman, Woodville..... 8

Five ewes, under two years:

1st premium, Brodie & Campbell, Ellisburgh 10
2d do Wood & Eastman, Woodville..... 8

Three buck lambs:

1st premium, Brodie & Campbell, Ellisburgh 5
2d do Simon Beattie, Woburn, C. W.,....Morrell's Shep.

Three ewe lambs:

1st premium, Simon Beattie, Woburn, C. W. 5
2d do Wood & Eastman, Woodville.....Morrell's Shep.

No. 33. Long Wooled Sheep, not Leicesters.

Buck, two years:

1st premium, John Snell, Edmonton, C. W..... $10
2d do John Betteridge, Clifton, Monroe county..... 8
3d do William Perceval, Amherst Island, C. W. 5

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Buck, under two years:

1st premium, Simon Beattie, Woburn, C. W. $10
2d do John Snell, Edmonton, C. W. 8

Pen five ewes, two years:

1st premium, James F. Converse, Woodville 10
2d do Cooper Sayre, Oaks Corners, Ontario co. 8

Pen five ewes, under two years:

1st premium, Simon Beattie, Woburn, C. W. 10
2d do Cooper Sayre, Oaks Corners 8
3d do James F. Converse, Woodville 5

Pen three buck lambs:

1st premium, Cooper Sayre, Oaks Corners 5

Pen three ewe lambs:

1st premium, James F. Converse, Woodville 5
2d do Cooper Sayre, Oaks Corners ..... Morrell's Shep.

No. 34. Middle Wooled, South Downs.

Buck, over two years:

1st premium, Samuel Thorne, Thornedale, Dutchess co. $10
2d do T. G. Aycrigg, Passaic, New Jersey 8
3d do R. H. Avery, Wampsville, Madison co. 5

Buck, under two years:

1st premium, Samuel Thorne, Thornedale 10
2d do Samuel Thorne, Thornedale 8
3d do Samuel Thorne, Thornedale 5

Pen five ewes, over two years:

1st premium, T. G. Aycrigg, Passaic, N. J. 10
2d do R. H. Avery, Wampsville 8
3d do C. B. Meek, Canandaigua 5

Pen five ewes, under two years:

2d premium, R. H. Avery, Wampsville 8
3d do Green & Mather, Henderson, Jeff. co. 5

Pen three ewe lambs:

1st premium, R. H. Avery, Wampsville 5
2d do Green & Mather, Henderson ..... Morrell's Shep.

No. 35. Middle Wooled, not South Downs.

Buck, over two years:

1st premium, C. B. Meek, Canandaigua, "Shropshire" $10

Pen five ewes, over two years:

2d premium, C. B. Meek, Canandaigua 8

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Pen three buck lambs:

1st premium, C. B. Meek, Canandaigua $5
2d do C. B. Meek, Canandaigua ..... Morrell's Shep.

Pen three ewe lambs:

1st premium, C. B. Meek, Canandaigua $5

Your committee notice with pleasure the exhibition of beautiful Mountain sheep of Messrs. Brodie & Campbell, not presented for competition, although your committee believe that these sheep should have been more properly entered in the lists of Long Wool sheep.

No. 36. Spanish Merinoes.

Buck, over two years:

1st premium, Geo. Campbell, Westminster, Vt. $10
2d do Julius Stickney, Wheeler, Steuben co. 8
3d do E. N. Bissell, Shoreham, Vt. 5

Buck, under two years:

1st premium, E. N. Bissell, Shoreham, Vt. 10
2d do Geo. Campbell, Westminster, Vt. 8
3d do Julius Stickney, Wheeler, Steuben county 5

Pen five ewes, over two years:

1st premium, Julius Stickney, Wheeler, Steuben co. 10

Pen five ewes, under two years:

1st premium, Davis Cossitt, Onondaga 10
2d do Davis Cossitt, Onondaga 8
3d do Julius Stickney, Wheeler 5

Pen three buck lambs:

1st premium, Julius Stickney, Wheeler 5

Pen three ewe lambs:

1st premium, Davis Cossitt, Onondaga 5
2d do Julius Stickney, Wheeler ..... Morrell's Shep.

No. 37. Silesian Merinoes.

Buck over two years:

1st premium, Wm. Chamberlain, Red Hook $10
2d do do do 8
3d do do do 5

Buck under two years old:

1st premium, Wm. Chamberlain, Red Hook 10
2d do Carl Heyne, Red Hook 8
3d do Wm. Chamberlain, Red Hook 5

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Pen five ewes over two years:

1st premium, Wm. Chamberlain, Red Hook $10
2d do do do 8

Pen five ewes under two years:

1st premium, Carl Heyne, Red Hook 10
2d do Wm. Chamberlain, Red Hook 8

Pen three buck lambs:

1st premium, Wm. Chamberlain, Red Hook 5

Pen three ewe lambs:

1st premium, Wm. Chamberlain, Red Hook 5
2d do do do .....Morrell's Shep.

No. 38. Cross Breed, of Fine Wool—Saxons and Merinoes.

Buck over two years:

1st premium, E. G. Cook, Ellisburgh $10
2d do Julius Stickney, Wheeler, Steuben county 8
3d do O. Howland, Auburn 5

Buck under two years:

1st premium, Wm. Chamberlain, Red Hook 10
2d do Geo. Campbell, Westminster, Vt. 8
3d do Wm. Chamberlain, Red Hook 5

Pen five ewes over two years:

1st premium, Wm. L. Chamberlain, Rhinebeck 10
2d do E. G. Cook, Ellisburgh 8
3d do do do 5

Pen five ewes under two years:

1st premium, Wm. L. Chamberlain, Rhinebeck 10
2d do Julius Stickney, Wheeler 8

Pen three ewe lambs:

1st premium, Wm. Chamberlain, Red Hook 5
2d do Wm. Richey, Watertown .....Morrell's Shep.

No. 39. Cross Breed, of Coarse or Middle Wool.

Buck over two years:

1st premium, John Betteridge, Clifton, Monroe county $10
2d do Cooper Sayre, Oaks Corners, Ontario county .. 8

Buck under two years:

1st premium, H. Bowen, Jr., Medina, Orleans county 10
2d do Wood & Eastman, Woodville 8
3d do John Betteridge, Clifton 5

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Pen five ewes over two years:

1st premium,	H. Bowen, Jr., Medina		$10
2d	do	Luther Lawyer, Brownville, Jefferson co.	8
3d	do	Wood & Eastman, Woodville	5

Pen five ewes under two years:

1st premium,	Wood & Eastman, Woodville		10
2d	do	Luther Lawyer, Brownville	8
3d	do	H. Bowen, Jr., Medina	5

Pen three buck lambs:

1st premium,	H. Bowen, Jr., Medina		5

Pen three ewe lambs:

1st premium,	Robert Brodie, Henderson, Jefferson co.		5
2d	do	Wood & Eastman, Woodville	Morrell's Shep.
3d	do	Luther Lawyer, Brownville	V. T.

No. 40. Swine—Large Breed.

Boar over two years:

1st premium,	A. C. Clark, Henderson, Jefferson co.		$10
2d	do	Hungerford & Heustis, Adams, Jefferson co.	5

Boar one year old:

1st premium,	T. T. Cavanagh, Watertown		10
2d	do	James F. Converse, Woodville	5

Boar six months and under one year:

1st premium,	A. C. Clark, Henderson		8
2d	do	do do	4

Breeding sow over two years:

1st premium,	Hungerford & Heustis, Adams		10
2d	do	do do	5

Breeding sow one year old:

1st premium,	C. C. Chase, Watertown		10
2d	do	do do	5

Sow six months and under one year:

1st premium,	A. C. Clark, Henderson		8
2d	do	A. B. Benham, Dryden, Tompkins county	4

Lot of pigs, not less than five, under ten months:

1st premium,	V. W. Smiley, Watertown		8
2d	do	Ives & Clark, Watertown	4

Small Breed.

Boar over two years:

1st premium,	A. P. Sigourney, Watertown		10
2d	do	Wm. Elliott, Kingston, C. W.	5

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Boar one year old:

1st premium, Elihu Griffen, Clinton Corners, Dutchess co... $10

Boar six months and under one year:

1st premium, A. M. Underhill, Clinton Corners..... 8
2d do James Thompson, Ballston Spa..... 4

Breeding sow over two years:

1st premium, M. McIntyre, Kingston, C. W..... 10
2d do A. M. Underhill, Clinton Corners..... 5

Breeding sow one year old:

1st premium, Wm. Elliott, Kingston, C. W..... 10
2d do L. Littlefield, Woodville 5

Sow six months and under one year:

1st premium, Elihu Griffen, Clinton Corners 8
2d do Jabez Olmstead, Watertown..... 4

Lot of pigs, not less than five, under ten months:

1st premium, M. McIntyre, Kingston, C. W..... 8
2d do Daniel Parker, Watertown 4

No. 41. POULTRY—DOMESTIC AND FROM OTHER STATES.

White dorkings:

1st premium, Heffron & Barnes, Utica 3
2d do do do 2

Speckled dorkings:

1st premium, Heffron & Barnes, Utica 3
2d do do do 2

Black Spanish:

1st premium, Heffron & Barnes, Utica 3
2d do do do 2

Black Polands:

1st premium, E. A. Wendell, Albany..... 3
2d do do do 2

Golden Polands:

1st premium, E. A. Wendell, Albany..... 3
2d do do do 2

Silver Polands:

1st premium, E. A. Wendell, Albany..... 3
2d do do do 2

Jersey Blues:

1st premium, Irwin Harris, Watertown..... 3

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Bolton Grays:

1st premium,	Heffron & Barnes, Utica	$3
2d do	E. A. Wendell, Albany	2

Game (Sumatra):

1st premium,	Heffron & Barnes, Utica	3
2d do	Irwin Harris, Watertown	2

Shanghai:

1st premium,	E. G. Cook, Ellisburgh, Jefferson county	3

Leghorn fowls:

1st premium,	T. D. Bradt, Watertown	3
2d do	James H. Reed, Watertown	2

Gold lace bantams:

1st premium,	Heffron & Barnes, Utica	3

Of any variety (Java bantams):

1st premium,	Heffron & Barnes, Utica	3
2d do	E. A. Wendell, Albany	2

Native or Dunghill fowls:

1st premium,	Heffron & Barnes, Utica	3
2d do	Charles Seaver, Watertown	2

TURKEYS.

Pair turkeys:

1st premium,	R. H. Avery, Wampsville, Madison county	3
2d do	Heffron & Barnes, Utica	2

Pair wild turkeys:

1st premium,	O. Howland, Auburn	3

DUCKS.

Pair Muscovy:

1st premium,	E. A. Wendell, Albany	3
2d do	O. Howland, Auburn	2

Pair Aylesbury:

1st premium,	Heffron & Barnes, Utica	3
2d do	do do	2

Pair black Cayugas:

1st premium,	E. A. Wendell, Albany	3
2d do	O. Howland, Auburn	2

Pair topknots:

1st premium,	Heffron & Barnes, Utica	3
2d do	E. A. Wendell, Albany	2

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Pair common:

1st premium, E. A. Wendell, Albany $3
2d do Heffron & Barnes, Utica 2

GEESE.

Pair common:

1st premium, O. Howland, Auburn 3

Pair Bremen:

1st premium, E. A. Wendell, Albany 3
2d do Heffron & Barnes, Utica 2

Pair brown China:

1st premium, E. A. Wendell, Albany 3
2d do Heffron & Barnes, Utica 2

Pair African:

1st premium, E. A. Wendell, Albany 3
2d do do do 2

GUINEA FOWLS.

1st premium, Heffron & Barnes, Utica 3
2d do John N. Van Amber, Watertown 2

PEA FOWLS.

1st premium, A. Gurney, Watertown 3
2d do John R. Adams, Brownville 2

PIGEONS.

Greatest variety:

1st premium, Heffron & Barnes, Utica 3
2d do E. A. Wendell, Albany 2

BEST EXHIBITION OF POULTRY, OWNED BY EXHIBITOR.

1st premium, Heffron & Barnes, Utica 5
2d do E. A. Wendell, Albany 3

RABBITS.

Pair long eared:

1st premium, Irwin Harris, Watertown 3

Pair common:

1st premium, E. A. Wendell, Albany 3
2d do Heffron & Barnes, Utica 2

Discretionary.

Best pair Angola rabbits, William Randall Avery, Wampsville ..... Diploma.

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CLASS IV.—FARM IMPLEMENTS AND MACHINERY.

No. 42. Plowing Match.

1st premium,		Wm. Walker, Gouverneur, St. Lawrence co.	$20
2d	do	G. W. Collins, Watertown	15
3d	do	Robert Cotton, Rutland	10
4th	do	Justus White, Watertown	5
5th	do	John Sharp, Limerick	Trans.

Boys under twenty-one years of age.

1st premium,		Wm. H. Cole, Brownville	$20
2d	do	S. D. French, Richfield Springs	15

Spading Match.

Best spading, 20 ft. by 10, Clement Jones, Le Ray 8

Your committee having tested the different plows presented for competition, with the dynamometer, find, in turning a furrow eleven inches wide and six inches deep:

Potter's plow has a draft of	452½ lbs.
Scotch plow has a draft of	600 "
Deer River plow has a draft of	673⅓ "
Lord's plow has a draft of	720 "

Tile Drains.

Your committee found only two entries for tile draining, for which they award the first premium to F. M. Mattice, Buffalo, $20
2d best, D. Worrod, Watertown ..... 15.
F. M. Mattice, Buffalo, for detaching machine ..... Dip.

Your committee found on exhibition a machine called a sod seeder and broadcast sower, which did its work admirably well, when tested under quite unfavorable circumstances; sowing the seed, covering and rolling it at the same time, with a draft of 400 lbs., as tested by the dynamometer. We recommend to the exhibitor, J. B. Duane, Schenectady, a premium of..Dip. and S. M.
Seed sower and harrower, H. Hewitt, Potsdam ..... V. T.
Rotary harrow, M. L. Bauder, Cleveland, Ohio ..... V. T.
Pulverizing harrow, C. S. Parkhurst (for Harrow Co.), Claremont, N. H. ..... V. T.

No. 43. Implements for working the Ground, Putting in Crops, &c.

Best roller for general use,		O. S. Woodruff, Watertown	$5
2d	do	C. C. Blodgett, Watertown	3
Best farm wagon,		T. Hungerford, Watertown	5

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2d best farm wagon, R. P. Goodenough, Ellisburgh, Jeff. co., $3
Best hay rigging, H. R. Hawkins, Akron, Ohio 3
Best ox yoke, M. W. Mason, Elbridge 2

Discretionary.

Farmers' market wagon, J. H. Vandenburgh, Schodack Center ..... V. T.
Briggs' self-adjusting wagon brake, J. E. Briggs, Watertown ..... Trans. and Dip.
Two farm gates, (large and small,) E. C. Leonard, Binghamton ..... Trans. and Dip.
Democrat wagon, H. Fuller, Herkimer ..... Trans.
Specimen basket-willow hedge, recommended to favorable notice of Ex. Committee, D. L. Halsey, Victory, Cayuga county ..... Dip.

No. 44. Hand Tools, &c., and Dairy Implements.

Best and most numerous collection of agricultural and gardening tools manufactured in the State of New York, H. & E. F. Cooper, Watertown $20
Best grain cradle, H. & E. F. Cooper, Watertown 3
Best twelve hand brakes, do do 3
Best six manure forks, do do 3
Best churn, D. W. Seeley, Albany ..... S. Medal.
2d do M. L. Bauder, Cleveland, Ohio 2
Best cheese press, A. H. & C. F. Emery, Mexico, Oswego co., 3
2d do H. & E. F. Cooper, Watertown 2
Best twelve milk pans, H. & E. F. Cooper, Watertown 3

Discretionary.

Watertown Agricultural Works, one drag saw, good article, favorable mention ..... Trans.
E. F. Hotchkiss, Unadilla Forks, butter worker ..... S. S. M.
O. Paddock, Watertown, cheese press ..... Trans.
H. & E. F. Cooper, Watertown, steel and curd knife ..... Trans.
do do barley forks, good article. Trans.
Geo. W. Allen, Watertown, revolving cheese turner ..... Dip.
Sweet Brothers & Co., Syracuse, set mowing machine knives; set mowing machine bars; set gear patterns; set specimen forging ..... Dip.
E. H. Dubois, Buffalo, mining picks ..... Trans.

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Benj. P. Markham, Ilion, steel cultivator teeth, shovel plow blades ..... Dip.
C. W. Acker, Copenhagen, cheese press ..... Trans.
L. Eames, Watertown, automatic grain meter ..... S. Medal.
do improved auger (superior) ..... Trans.
George M. Rhoades, Hubbardsville, Madison co., telegraph teazle trimmer ..... Dip.

To the Hon. President and Executive Committee of New York State Agricultural Society:

The undersigned committee have the honor to report, that they have endeavored to execute the duty entrusted them with care, caution and impartiality. They have found a number of very worthy articles, some of which were not contained in your catalogue. The competition in some branches was spirited, and contested with great zeal. Your committee have to report, in general, an improvement in this department over former exhibitions; and in order to encourage additional improvement, have transcended their authority, and recommend to your favorable consideration, in addition to articles enumerated in regular premium list, the following:

To D. W. Seeley, Albany, for scientific churn, the committee recommend a large silver medal. This churn was put to test, and made butter in one minute and fifty seconds from fresh milk. It operates on a new principle, and the committee, after careful examination, think it worthy of special mention.

The committee also recommend a medal to L. Eames, Watertown, for his automatic grain meter. This is an ingenious, simple arrangement for measuring grain, and weighs with the greatest accuracy. It was tested with the best results, and the committee think it entitled as above.

They also recommend a medal to E. F. Hotchkiss, for a simple arrangement for working butter. It seems to answer the purpose admirably, and is on an entirely new principle.

The committee also recommend such diplomas, transactions, &c., as are named in the annexed entries. They cannot conclude this desultory report without mentioning, especially, courtesies extended them by the officers under your charge; and also to note that there were several articles that properly belonged to their department entitled to premiums, that were in other classes.

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The corn harvester of Mr. Johnson, from Buffalo, as well as an ingenious implement for husking corn, were both worthy of especial mention.

All of which is respectfully submitted.

I. T. F. WRIGHT,
HIRAM WALKER,
HENRY KEELER,
Committee.

No. 45. MACHINES NOT EMBRACED IN ABOVE DIVISIONS.

Best stationery steam engine, Bagley & Sewall, Watertown..S. M.
Best hay and cattle weighing scales, Sampson & Tibbit Scale Co., Troy .....S. S. M.
Best portable saw mill for farm use, Dow & Fowler, Fowlerville $8
2d do Watertown Agricultural Works, Watertown.. 6
Best arrangement for raising water other than pump, Merrill & Ward, Norwich, N. Y. 5
Best hydraulic ram, Cowing & Co., Seneca Falls ..... Dip.

Discretionary.

Cistern pumps, W. G. Gardner, Watertown ..... Dip.
Metalic sap conductor, H. Hecox, South Rutland ..... Dip.
Shafting & pulley in operation, Bagley & Sewall, Watertown. Dip.
Best blind slat planing machine, A. M. Foster, Albany..... Dip.
Union-counter and druggist's scales, D. D. Otis, Watertown. Dip.
Steel composition bells, at 12 cts. per lb., Brown & White, New York .....Trans.
Harrison's patent rotary hanging for bells, Brown & White, New York..... Dip.
Drain tile (1st premium) F. M. Mattice, Buffalo..... Dip.
Drain tools, F. M. Mattice, Buffalo..... Dip.
Drake's spacing and boring machine, P. H. Wemple, Albany, Dip.
Windmill for raising water (1st premium), E. W. Mills, Skaneateles ..... Dip.
Water elevator (2d premium), E. S. Taylor, Cleveland, Ohio. Dip.
Double seaming machine, for tin ware, S. Sweeney, Rome.. Dip.
Dating machine, G. K. Hannon, Buffalo..... Dip.
Best shingle machine, H. W. Angel, Blossvale, Oneida co.... Dip.
2d best do Robert Saw, Lockport.....Trans.
Wood pipe (1st premium), L. Eames, Watertown .. .. Dip.

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Morticing machine (1st premium), L. Eames, Watertown... Dip.
1st premium agricultural furnace and cauldron, J. S. and M. Peckham, Utica..... Dip.
2d premium, Jas. Morrison, Jr., Troy.....Trans.
Prindle's agricultural cauldron and steamer (1st premium) an excellent article, S. D. N. Bennett, Rochester..... Dip.
Portable grist-mill, Sherman Wait, Watertown ..... Dip.
Cement water pipe, as much established in the U. S. as any one of its class, C. Holcomb, Watertown.....Trans.

No. 45½. IMPLEMENTS.

Large thresher with cleaner and separator:
1st premium, Dow & Fowler, Fowlerville $5

Small size:
1st premium, G. Westinghouse & Co., Schenectady..... 5
2d do Emery Brothers, Albany 3

Horse power (lever principle):
1st premium, Emery Brothers, Albany 8
2d do Dow & Fowler, Fowlerville..... 4

Horse power (endless railway):
1st premium, Emery Brothers, Albany 8
2d do G. Westinghouse & Co., Schenectady..... 4

Cornstalk and straw cutter, horse power:
1st premium, Dow & Fowler, Fowlerville..... 5

Cornstalk and straw cutter, hand power:
1st premium, D. C. Cummings, Fulton..... 5
2d do Dow & Fowler, Fowlerville..... 3

Corn-sheller, horse power:
1st premium, Dow & Fowler, Fowlerville 8

Corn-sheller, hand power:
1st premium, Dow & Fowler, Fowlerville..... 6
2d do Jason Smith, Rochester..... Dip.

Hay and stubble rake:
1st premium, Samuel Wilson, Watertown 4

Stone digger and wall layer:
1st premium, N. E. Adams, Stamford, Ct.....S. Med.

Discretionary.

Grain separator (2d premium), F. B. Coffeen, Watertown..Trans.
Johnson's American corn husker, John Gifford, Watertown.. Dip.

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Dog power (1st premium), Watertown Agricultural Works, Watertown ..... Trans.
Wheat cleaner and scourer (1st premium), Isaac Wait, Watertown ..... Dip.
Grain separator and fanning mill, A. Runyon, Hanibalville, Oswego county ..... Dip.
Ditching and subsoil plow (1st premium), F. M. Mattice, Buffalo ..... S. Med.
Corn-sheller, good machine, W. D. Burrill & Co., Geneva, Ontario county ..... Favorable notice.
Self-raking attachment on Wood's reaper and mower, W. A. Wood, N. Y. ..... S. Med.
Horse power governor, Emery Brothers, Albany, ... S. S. Med.
Improved running gear for endless chain power, Emery Brothers, Albany ..... Commended.
A diploma is recommended on Pusey's patent regulator, as exhibited by Emery & Westinghouse, on horse powers.
Self-operating brake, J. M. Harvey & Son, Amsterdam ..... Dip.

The committee in Class IV, No. 45, respectfully report:

That they have examined with all practicable care the articles entered on the books given them in charge, and with pleasure announce that the exhibition in this department has been highly creditable to those entering the same, showing constant progress in excellence of material and construction.

Trials of machinery and implements are more essential to the development of true merit than in most other departments of our annual fairs; and if exhibitors feel aggrieved that we have failed to award many premiums offered by the Society, it is not condemnatory of the articles exhibited, but because we cannot know, except by actual and thorough test, what the true and comparative merit of the machine or implement is.

Hoping that another year the Society may have the means and facilities to bring out the true qualities of the leading instruments connected with this department, and award by facts and not by guess-work or theories, we throw upon the committee or committees then selected the duties we might now be expected to assume.

HENRY RUTTAN,
JOSEPH E. HOLMES,
E. D. WOOD,
Committee.

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CLASS V.

No. 46. Grain and Seeds.

1st premium,		white winter wheat, J. M. Waterbury, Sackett's Harbor	$5
1st premium,		red winter wheat, O. Howland, Auburn	5
1st	do	white spring wheat, D. A. Delano, Watertown,	5
2d	do	do do A. Graves, Watertown	3
1st premium,		red spring wheat, J. E. Gibbs, Pamelia	5
2d	do	do O. Howland, Auburn	3
1st premium,		rye, Amos Goulding, Le Ray, Jefferson co.	5
2d	do	rye, C. A. Ostrander, East Hounsfield	3
1st premium,		oats, Amos Goulding, Le Ray	5
2d	do	oats, Alexander Tingue, Pamelia	3
1st premium,		winter barley, De Witt C. DeForest, DeFreestville, Rensselaer county	5
2d premium,		winter barley, O. Howland, Auburn	3
1st	do	spring barley, A. Goulding, Le Ray	5
2d	do	do O. Howland, Auburn	3
1st	do	buckwheat, 1 bushel, H. Wier, Johnsonville	3
1st	do	millet, half bushel, H. Wier, Johnsonville	3
1st	do	timothy seed, H. Blodgett, Denmark	3
2d	do	do O. S. Woodruff, Pamelia	2
1st	do	12 ears yellow seed corn, M. Bailey, Watertown	3
2d	do	Geo. D. Brainard, Adams	2
1st	do	12 ears white seed corn, Nat'n Talcott, Adams	3
2d	do	E. G. Cook, Ellisburgh	2
1st	do	12 ears sweet corn, R. H. Avery, Wampsville, Madison county	3
2d	do	J. M. Cleveland, Adams	2
1st	do	white beans, A. P. Chamberlain, Le Ray	5
2d	do	H. Wier, Johnsonville, Rensselaer county	3
1st	do	peas, James H. Reed, Watertown	5
2d	do	H. Blodgett, Denmark, Lewis county	3
1st	do	flax seed, Abram Archer, Rutland, Jefferson co.	3
2d	do	L. L. French, Richfield Springs	2
1st	do	hops, A. P. Smith, Watertown	5
2d	do	W. M. Clinton, Milford, Otsego county	3

Your committee would also recommend to Mr. H. Blodgett, of Denmark, for "Cerro Gordo," or California wheat.....Trans.

Hiram Webb, Rodman, Jefferson co., Russian barley.....Trans.

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No. 47. VEGETABLES.

1st	premium,	celery, Mark Taylor, Watertown	$3
2d	do	James F. Starbuck, Watertown	2
1st	do	cauliflowers, Mark Taylor, Watertown	3
1st	do	white table turnips, H. N. Kimball, Rutland, Jefferson county	3
1st	do	carrots, Hiram Converse, Watertown	3
2d	do	C. Seaver, Watertown	2
1st	do	beets, Mark Taylor, Watertown	3
2d	do	Geo. Webb, Watertown	2
1st	do	parsnips, James F. Starbuck, Watertown	3
2d	do	O. A. Graves, Watertown	2
1st	do	onions, W. Bailey, Watertown	3
2d	do	A. D. Maynard, Limerick, Jefferson co.	2
1st	do	cabbages, Jas. F. Starbuck, Watertown	3
2d	do	Abram Archer, Rutland	2
1st	do	tomatoes, Geo. Henning, Saratoga Springs	3
2d	do	De Witt C. DeForest, DeFreestville, Renss. co.	2
1st	do	purple egg plants, D. W. C. DeForest, DeFreestville, Rensselaer county	3
1st	do	lettuce, Geo. Henning, Saratoga Springs	3
2d	do	Mrs. J. T. Van Namee, Pittstown, Renss. co.	2
1st	do	summer radishes, Hiram Becker, Watertown	3
2d	do	Mark Taylor, Watertown	2
1st	do	winter radishes, T. D. Ely, Watertown	3
2d	do	Mark Taylor, Watertown	2
1st	do	brocoli or German greens, Geo. Henning, Saratoga Springs	3
2d	do	H. H. Kellogg, Watertown	2
1st	do	double parsley, Jas. F. Starbuck, Watertown	3
2d	do	Geo. Henning, Saratoga Springs	2
1st	do	Japan or apple pie melon, Mrs. H. Wier, Johnsonville, Rensselaer county	3
1st	do	large squashes, T. D. Bradt, Watertown	3
2d	do	D. W. C. DeForest, DeFreestville, Renss. co.	2
1st	do	field pumpkin, Nathan Talcott, Adams, Jeff. co.	3
2d	do	Jabez Olmstead, Watertown	2
1st	do	half peck table potatoes, T. V. Maxon, Adams,	3
2d	do	W. Tallman, Watertown	2
1st	do	greatest variety of vegetables (80 varieties), Geo. Henning, Saratoga Springs	10

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2d premium, H. Becker, Watertown $5
Best new and valuable variety of vegetable (California pumpkin), J. Blodget, Hounsfield 3
1st premium, Honolulu squash, Geo. Henning, Saratoga Sp. 3
2d do J. M. Cleveland, Adams 2
1st do Hubbard squash, G. W. Bond, Adams 3
2d do R. H. Avery, Wampsville, Madison county ... 2

No. 48. Flour, &c.

1st premium, starch from corn, Abram Archer, Rutland, Jefferson county ..... S. S. M.
1st premium, crackers, 6 varieties, Jas. S. Caldwell, Watertown ..... S. S. M.
1st premium, domestic wheat bread, Mrs. P. Snyder, Watertown ..... S. S. M.
1st premium, domestic corn bread, Mrs. B. D. Dealing, Adams ..... S. S. M.
1st premium, preserved fresh fruits (crab apple marmalade), Mrs. H. Mills, Martinsburgh, Lewis county ..... S. S. M.

Discretionary.

Domestic wheat bread, Mrs. Lewis Parker, 3 Mile Bay .... Trans.

No. 49. Butter.

25 lbs. made in June:

1st premium, Edwin Woolworth, Turin, Lewis county $15
2d do W. P. Ball, Rutland, Jefferson county 10
3d do S. Rockwell, Watertown 5
4th do Daniel Todd, East Rodman, Jefferson co.... Trans.

50 lbs. made at any time:

1st premium, Geo. Webb, Watertown $15
2d do B. M. Todd, Rodman, Jefferson county 10
3d do Edwin Woolworth, Turin 5
4th do Abram Bull, South Rutland ..... Trans.
Best barrel of salt for dairy purposes, Salt Company of Onondaga, Massey & Boalt, Watertown ..... Dip.
Best bag of salt for table use, Salt Company of Onondaga, Massey & Boalt, Watertown ..... Dip.
Best barrel of coarse salt, for packing, Salt Company of Onondaga, Syracuse ..... Dip.

Girls under twenty-one years of age.

1st premium, butter, Miss Lydia A. Graves, Watertown.. S. Cup.

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2d premium, butter, Miss A. Chapman, Loraine, Jefferson county ..... Pair butter knives.
3d premium, butter, Miss Florence M. Wilson, Watertown, Set tea spoons.
4th premium, butter, Miss Mary A. Waters, Lowville, Lewis county ..... S. S. M.

About fifty samples of butter were entered, mostly from Jefferson county. The committee regret that the competition from adjoining counties was not more extensive. Most of the samples were good—some of them very fine. The committee have felt compelled to reject some very superior packages on account of being oversalted. Some of the best made June butter was not well kept. The show of butter was, on the whole, very creditable to the dairymen of Jefferson county.

The committee was highly pleased with samples of dairy salt, from the Onondaga Salt company of Syracuse, on exhibition by Massey & Boalt, of Watertown. The salt appears to be a nice article, clear and free from impurities, and deserves a fair trial by the dairymen of the State. We think it is destined to take the place of the Ashton salt.

We understand great improvements have of late been made in the method of manufacture. Prof. Porter, who has recently made an analysis of this salt, assured the committee that it compared very favorable with the imported salt.

The committee were entirely unanimous in awarding the above premiums.

No. 50. Cheese.

One year old and over.—100 lbs:

1st premium,		Clift Eames, Rutland, Jefferson county	$15
2d	do	W. P. Babcock, Great Bend, Jefferson county,	10
3d	do	E. F. Carter, Evans Mills, Jefferson county...	5
4th	do	J. E. Gibbs, Pamelia, Jefferson county	3
5th	do	Jeremiah Parker, Watertown.....	Trans.

Less than one year old.—100 lbs:

1st premium,		Jesse Williams, Rome.....	$15
2d	do	Norman Gowdy, Lowville, Lewis county.....	10
3d	do	N. Clark, Copenhagen, Lewis county.....	5
4th	do	L. W. Babcock, Great Bend	3
5th	do	D. Hamlin, Rutland, Jefferson county.....	Trans.

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Cheese vat:

1st premium, Roe's patent, with Cooper's patent heater and valves, H. & E. F. Cooper, Watertown,.... Dip.
2d do O. O'Neil & Co., Utica..... $3

Discretionary.

Swiss cheese, good sample—B. B. Taggart, LeRaysville Jefferson county.....Trans.

No. 51. Sugar and Honey.

25 lbs. maple sugar:

1st premium, H. Blodgett, Denmark, Lewis county..... $5
2d do Daniel Parker, Watertown 3
3d do S. B. & S. F. Woolworth, Copenhagen, Lewis county .....Trans.

Maple syrup, one gallon:

1st premium, Wm. Woolworth, Lorraine, Jefferson county.. $3
2d do T. V. Maxon, Adams 2
3d do S. B. & S. F. Woolworth, Copenhagen .....Trans.

Honey.

20 lbs. honey:

1st premium, Wm. C. Gould, Pamelia Four Corners..... $5
2d do Abram Archer, Rutland..... 3
3d do W. F. Otterson, Watertown.....Trans.

Bee hive:

1st premium, K. P. Kidder, Burlington, Vt.....Dip.

Honey Bee Taming.—Amongst the many curiosities we noticed Mr. K. P. Kidder, of Burlington, Vt., the great honey bee tamer. He had a swarm of the celebrated Italian bees in his patent hive, which he threw amongst the crowd with as much ease and safety as though they had been flies. As they did not seem to sting any one, many of the spectators called them stingless bees. He seemed to take many orders for the Italian queens, which he assured us could be introduced into a hive of common bees, and in three or four months' time the whole colony would be of the gold striped kind. His compound hive seemed to be peculiarly constructed, the combs being built upon movable frames, so they could be taken out at any time. It also could be arranged into two separate hives, or a non-swarming hive, thus preventing the bees from swarming. His hive and system of management seem to be the best we have ever seen.

JAS. B. PHILLIPS,
For Committee.

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CLASS VI—DOMESTIC MANUFACTURES.

No. 52. Silk and Woolen Goods—No. 1.

Pair woolen blankets:

1st premium,	Miss H. W. Smith, Lowville, Lewis county		$5
2d	do	H. Walker, Union Square, Oswego county	3
3d	do	Mrs. Jeremiah Parker, Watertown	2
4th	do	Mrs. S. E. Field, E. Hounsfield, Jefferson co.,	Trans.

10 yards woolen cloth:

1st premium,	Mrs. M. Watkins, Pamelia		$8
2d	do	D. Burrows, Rome	6
3d	do	H. O. Gilmore, Dexter, Jefferson county	4

10 yards woolen flannel:

1st premium,	Mrs. H. Wier, Johnsonville, Rensselaer co.		8
2d	do	Mrs. N. Haven, Watertown	6
3d	do	Mrs. Jabez Olmstead, Watertown	4
4th	do	Mrs. J. Woolworth, Adams	Trans.

10 yards woolen carpet:

1st premium,	O. S. Woodruff, Watertown		$8
2d	do	O. F. Spencer, Watertown	6

10 yards domestic ingrain carpet, yarn spun in family:

1st premium,	Thos. H. Anthony, Pamelia Four Corners		5

Hearth rug:

1st premium,	Mrs. J. Blood, Watertown		3
2d	do	Mrs. J. L. Rice, Watertown	2

Rag carpet, 20 yards:

1st premium,	Mrs. Harriet Lamb, Fulton, Oswego county		5
2d	do	Mrs. S. F. Woolworth, Copenhagen	3
3d	do	Geo. Otis, Black River, Jefferson county	2
4th	do	Geo. W. Dodge, Watertown	Trans.

10 yards woolen flannel, cotton warp:

1st premium,	Miss Jane Welling, Johnsonville		$8
2d	do	Mrs. A. Bristol, Adams Center	6
3d	do	Miss N. Bristol, Adams Center	4
4th	do	Miss S. M. Bristol, Adams Center	Trans.

No. 53. Domestic Manufactures—No. 2.

Double carpet coverlet:

1st premium,	Miss Mary E. Staples, Watertown		$5
2d	do	Mrs. W. H. Graves, Blossvale, Oneida county,	3
3d	do	Mrs. R. Harrington, Watertown	2
4th	do	Miss S. M. Bristol, Adams Center	Trans.

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Knit bed spread:

1st premium,	Mrs. Ezra Grinnel, (70 yrs. old) Evans' Mills.		$3
2d do	Miss Mary Beecher, Watertown		2
3d do	Mrs. Daniel Parker, Watertown		1

White wove bed spread:

1st premium,	Mrs. J. E. Gibbs, Watertown	3
2d do	Mrs. H. Wier, Johnsonville	2

Six skeins woolen stocking yarn:

1st premium,	J. A. Willard, Lowville, Lewis county	2
2d do	Miss Sallie Maynard, Limerick, Jefferson co.	1

Pair woolen knit stockings:

1st premium,	Mrs. P. Green, jr., Adams Center	2
2d do	Mrs. N. Haven, Watertown	1

Pair worsted knit stockings:

1st premium,	Mrs. H. Field, East Hounsfield	2
2d do	Miss P. J. Tallman, La Fargeville, Jeff. co.	1

Pair woolen fringe mittens:

1st premium,	Mrs. W. H. Graves, Blossvale	2
2d do	Mrs. J. T. Van Namee, Pittstown, Rens. co.	1

Discretionary.

White knit bed spread, Mrs. J. Blackstone, East Rodman, R. Culturist.

Woolen socks and mittens, Miss N. Bristol, Adams Center, Ladies' Flower Garden.

Knit stockings and mittens, Mrs. Z. Babcock, (74 years old) Watertown ..... Strawberry Culture.

Horse blankets, Mrs. M. M. Stewart, Sackett's Harbor, Rose Culturist.

Cotton and woolen mixed cloth, J. Bacon, Pamelia Four Corners ..... Trans.

Knit fur gloves and fur yarn, Mrs. R. C. Fisher, Belleville, Flower Garden.

Carpet coverlet, Mrs. Isaac Miller, Pamelia Four Corners, Flower Garden.

No. 54. Domestic Manufactures—No. 3.

Ten yards linen:

1st premium,	Miss Jane Welling, Johnsonville		$8
2d do	Mrs. H. Wier, Johnsonville		6
3d do	Mrs. Wm. H. Graves, Blossvale, Oneida co.		4

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Ten yards linen diaper:

1st premium, Mrs. H. Wier, Johnsonville, Rensselaer co.... $8
2d do Simon Brown, Lowville, Lewis county..... 6
3d do Mrs. J. E. Gibbs, Watertown 4
4th do Mrs. Jane Welling, Johnsonville .....Trans.

Ten yards linen kerseys:

1st premium, Mrs. H. Wier, Johnsonville $8
2d do Miss Jane Welling, Johnsonville..... 6
3d do Mrs. Jabez Olmstead, Watertown 4
4th do H. Walker, Union Square.....Trans.

Ten yards tow cloth:

1st premium, Mrs. H. Wier, Johnsonville..... $4
2d do Mrs. N. Haven, Watertown..... 2

Pair cotton knit stockings:

1st premium, Miss S. M. Bristol, Adams Center..... 2
2d do Miss Jane Welling, Johnsonville..... 1

Pair linen knit stockings:

1st premium, Mrs. H. Kilborn, Stone Mills, Jefferson co.... 2
2d do Mrs. Norman Gowdy, Lowville, Lewis co..... 1

Pound linen sewing thread:

1st premium, Mrs. H. Wier, Johnsonville..... 2
2d do Mrs. Abram Archer, Watertown..... 1

Discretionary.

Flax cotton, K. Eames, Rutland, Jefferson county .....Trans.

No. 55. Needle Work, &c.

Silk embroidery:

1st premium, Mrs. H. Peck, Watertown $3
2d do Miss Lizzie Massey, Watertown..... 2
3d do do do Pardee on Straw'y.

Cape embroidery:

1st premium, Mrs. E. T. Crocker, Syracuse $3
2d do Mrs. E. K. Ely, Watertown..... 2
3d do Mrs. J. F. Starbuck, do Vinedresser's Manual.

Scarf embroidery:

1st premium, Mrs. T. Hungerford, Watertown $3

Specimen Turkish embroidery:

1st premium, Mrs. D. M. Bennet, Watertown..... 3
2d do Mrs. Sarah M. Brown, Lowville 2

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3d premium, Miss Cornelia Fonda, Watertown....Breck's Book of Flowers.

Crochet shawls:

1st premium, Mrs. O. W. Ranney, Buffalo..... $3
2d do Miss Mary Massey, Watertown..... 2
3d do Miss K. Mullin, Watertown....Pardee on Straw'y.

Crochet table mats:

1st premium, Mrs. Adriel Ely, Watertown..... $3
2d do Mrs. H. Peck, do 2
3d do Mrs. Asaph Mather, do Lady's Flower Garden.

Embroidered tidy on black canvass:

1st premium, Mrs. W. W. Herrick, Watertown..... $3
2d do Mrs. W. S. Woodhull, Watertown..... 2
3d do Mrs. E. T. Crocker, Syracuse. Vinedresser's Manual.

Knit Affghan:

1st premium, Mrs. E. S. Lansing, Watertown..... $3
2d do Miss V. Binsee, Watertown..... 2

Knit hood:

1st premium, Miss Mary E. Staples, Watertown..... 3
2d do Miss Maria Kenyon, Watertown..... 2

Knit sofa cushion:

1st premium, Mrs. Lucy St. Clair, New York..... 3

Original pencil drawing from nature, by lady:

1st premium, Mrs. W. W. Herrick, Watertown..... 3

Specimen crayon painting, by lady:

1st premium, Miss Martha S. Brainard, Watertown..... 3
2d do Mrs. Wm. Ely, Watertown..... 2

Oil painting (figures) by lady:

1st premium, Miss Ellen Penniman, Sterlingville..... 3
2d do do do 2
3d do Miss S. Bushnell, Watertown. Vinedresser's Manual.

Oil painting (landscape) by lady:

1st premium, S. M. Robinson, Watertown, (painted by Miss Helen Searle)..... $3
2d do Mrs. Wm. A. Ely, Watertown..... 2
3d do Miss C. R. McAllister, Antwerp....Rose Culturist.

Water color painting, by lady:

1st premium, Mrs. E. T. Crocker, Syracuse..... $3
2d do do do 2

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Miniature on ivory, by Miss Louise Waggoner, Albany, exhibited by Mrs. D. W. C. Deforest, De Freestville, Rens. co., Dip.

Original oil color drawing from nature, by lady:
1st premium, Mrs. Wm. A. Ely, Watertown..... $3

Discretionary.

Fancy table, Mrs. S. B. Upham, Watertown .....Downing.
Embroidered pocket h'dk'f, Mrs. E. P. Wait, Rome..Flower Garden.
Embroidered child's dress, Mrs. E. T. Crocker, Syracuse..Barry.
Knit collars, Miss N. Bristol, Adams Centre..Reemelin on the Vine.
Embroidered night dress, Miss M. J. Nichols, Watertown, Rose Culturist.
Embroidered collar and chemisette, Mrs. M. Hogan, Watertown.....Trans.
Knit chair tidy, Mrs. A. M. Rogers, Watertown...Fruit Garden.
French pastel or crayon painting, Miss Helen Gray, Taberg Station .....Barry.
Wax doll, Mrs. E. T. Crocker, Syracuse.....Kitchen Garden.
Lamp mat, Mrs. Wm. Hungerford, Watertown.....Fitch.
Lamp mat, Mrs. H. Field, East Hounsfield.....Trans.
Crochet hair dress, Miss E. K. Ely, Watertown..Fruit Culturist.
Crochet table mat, Mrs. E. T. Crocker, Syracuse.....Trans.
Worsted chair tidy, Mrs. P. Mundy, Watertown.....Downing.
Worsted crochet tidy, Mrs. Adriel Ely, Watertown..Rose Culturist.
Oil paintings, Misses Frances A. and Marcia P. Snyder, Watertown .....Diploma.
Floor mat, Mrs. H. Field, East Hounsfield .....Fitch.
Mats, Mrs. S. F. Spicer, Perch River, Jefferson co.....Trans.
Leather work (flower stand,) Mrs. J. K. Bates, Watertown, Landscape Gardening.
Set hall window shades painted in oil, by a lady, and specimens fancy paper work, Miss Azeneth Cooledge, Watertown.....Flower Garden.
Oriental painting, Mrs. B. D. Dealing, Adams.....S. S. M.
Original oil paintings, Miss A. O. Howard, Watertown..S. S. M.
Water color paintings, Mrs. Wm. A. Ely, Watertown, Rural Architecture.
Crayon paintings, Miss Mary A. Eames, Watertown, Rose Culturist.
Crayon paintings, Mrs. Ely Overton, Watertown..Rose Culturist.
Patchwork quilt, Mrs. E. Chamberlain, Watertown..... Dip.

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No. 56. NEEDLE-WORK, &c.

Chair (cushion and back):

1st premium, Miss Mary Massey, Watertown $3
2d do Mrs. O. W. Ranney, Buffalo 2
3d do Mrs. P. Mundy, Watertown .....Rose Culturist.

Ottoman cover:

1st premium, Mrs. B. Burt, Ox Bow, Jefferson co..... $3
2d do Mrs. E. T. Crocker, Syracuse 2

Ornamental shell work:

1st premium, Mrs. E. T. Crocker, Syracuse 3
2d do Mrs. Garritt Ives, Watertown 2
3d do Mrs. H. Strong, Watertown..Vinedresser's Manual.

Specimen wax flowers:

1st premium, Mrs. Dr. Mansfield, Gouverneur, St. Law. co.. $3
2d do do do do 2
3d do Mrs. David Williams, Adams.....Florist's Guide.

White quilt:

1st premium, Mrs. S. T. Bordwell, Watertown $3
2d do Mrs. Wm. L. Eddy, Watertown 2
3d do Mrs. J. L. Rice, Watertown .....Barry.

Transposed quilt:

1st premium, O. Williams, Gouverneur, St. Lawrence co... $3
2d do Mrs. Fanny L. Hammond, Watertown 2
3d do Mrs. G. W. Hammond, Watertown....R. Culturist.

Patchwork quilt:

1st premium, Mrs. Norman Gowdy, Lowville $3
3d do Mrs. E. J. Harman, Watertown.....R. Culturist.

Specimen plain sewing:

1st premium, Mrs. W. S. Woodhull, Watertown $3
2d do Mrs. Harriet Lamb, Fulton, Oswego county... 2

White work bed spread:

1st premium, Mrs. L. F. Allen, East Hounsfield 3
2d do Mrs. S. Gifford, Watertown 2
3d do Mrs. S. Seeber, Pamelia.....Rose Culturist.

Discretionary.

Ottoman frame and cover, Mrs. R. C. Fisher, Belleville, Jefferson county .....Fruit Culturist.
Worsted worked ottoman, Mrs. Wm. Wright, Dexter.....Trans.

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Embroidered mittens, Mrs. Harriet Lamb, Fulton, Oswego county ..... Florist's Guide.
Worsted flowers, Mrs. H. S. Greene, Watertown, Vine Dresser's Manual.
Crochet tidies and hair jewelry, Mrs. E. T. Crocker, Syracuse ..... Downing.
Patchwork cushion and chair back, Mrs. H. M. Bushnell, La Fargeville ..... Florist's Guide.
Best hair jewelry, Mrs. L. F. Mansfield, Watertown, Vine Dresser's Manual.
2d best hair jewelry, Mrs. J. T. Osmer, Lowville .... R. Culturist.
Wax fruit, Mrs. M. F. Coon, Canton, St. Lawrence co..... Dip.
Hair wreath, Miss A. M. Tallman, Watertown..... R. Culturist.
Hair flowers, Miss Carrie L. Mosher (11 years old), West Martinsburgh ..... Strawberry Culture.
Embroidered slippers, Mrs. E. T. Crocker, Syracuse..... Trans.
Embroidery, Geo. F. Bates (7 years old), Watertown .... S. S. M.
Picture frame of cone and shells, Mrs. Oliver Child, Philadelphia, Jefferson county ..... Trans.
Pellice work, Miss P. J. Tallman, La Fargeville, Strawberry Culture.
Patchwork bed quilt, Mrs. L. Spink, Rodman, Scientific Agriculture.
do do Mrs. E. Chamberlain, Watertown .... Fitch.
Patchwork quilt, stars and stripes, Miss Sabrina Gillett, Smithville, Jefferson county ..... S. S. M.
Oriental painting, Miss Mary E. Woolworth, Adams, Vine Dresser's Manual.
Seed frames, Mrs. Daniel Parker, Watertown ..... S. S. M.
Picture frame, cone work, Mrs. Oliver Child, Philadelphia, N. Y. ..... Grape Grower's Guide.
Artificial flowers, Mrs. David Williams, Adams, do
Patchwork quilt and case wax fruit, Susan M. Robertson, Watertown ..... S. S. M.
Feather flowers, Mrs. L. M. Burns, Watertown ..... Downing.
Hair wreath, Miss Cornelia Turner, Potsdam .... Flower Garden.

CLASS VII.—MISCELLANEOUS DEPARTMENT.

No. 57. Paintings, &c.

Best pencil drawings, animals, A. H. Emery, Mexico, Oswego county ..... Dip.

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Best photograph of animals, James M. Dow, Ogdensburgh.. Dip.
Best daguerreotypes, Chas. S. Hart, Watertown ..... Dip.
Best collection of photographs, Chas. S. Hart, Watertown.. Dip.
do ambrotypes, do do .. Dip.
Best handbill for agricultural societies, Charles Van Benthuysen, Albany .... Dip.
Best original oil landscape, C. D. Potter, Adams Centre.... Dip.
Best specimen ornamental penmanship, D. T. Ames, Oswego. Dip.
Best specimen business penmanship, J. T. Calkins, Albany.. Dip.

No. 58. Silver ware, Cutlery and Britannia.

Best exhibition of silver ware, Geo. Newcomb, Watertown. Dip.
Best specimen of jewelry, Geo. Newcomb, Watertown..... Dip.
Best plated harness mountings, R. G. Pine, Watertown..... Dip.
Self-winding clock, Robert Hitchcock, Watertown ..... Dip.
Case fine American watches, American Watch Co., Waltham, Mass. ..... Dip.
Best watch, Charles Fasoldt, Rome ..... Dip.
Best specimen plated ware, Murray, Weaver & Co., Watertown ..... Dip.
Spring bracelets, F. Grodjinski, Brooklyn..... Dip.
Imitation coral beads, do do ..... Dip.
Best barometer for common use, T. R. Stackhouse, Omar, Jefferson county ..... Dip.
Gravitating plumb and level, Cole's patent, do do Dip.
Best family preservatory or refrigerator, D. S. Heffron, Utica Dip.

No. 59. Stoves (cooking.)

Elevated oven cooking stove, for wood fire:
1st premium, J. S. & M. Peckham, Utica, "Oneida"..... Dip.
2d do P. A. Palmer & Co., Troy.....S. S. M.

Low oven cooking stove, for wood fire:
1st premium, H. & E. F. Cooper, Watertown, "Stuart's".. Dip.
2d do W. G. Gardner, Watertown, "Economist"..S. S. M.

Elevated cooking stove, for coal:
1st premium, P. A. Palmer & Co., Troy, "King"..... Dip.

Low oven cooking stove, for coal:
1st premium, S. H. Ransom & Co., Albany, "Peacemaker". Dip.
2d do Jas. Morrison, Jr., Troy, "Home Comfort"..S. S. M.

Furnace for warming houses:
1st premium, W. G. Gardner, Watertown..... Dip.

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Wood furnace:
2d premium, Ten Eyck & Lansing, Watertown ..... Dip.

Discretionary.

Warming closets, W. G. Gardner, Watertown ..... Dip.

Crystalized teapot:
1st premium, A. Munroe, Watertown ..... Dip.
2d do E. A. Munroe, Canton, St. Lawrence co. ..... Trans.
Sad iron heater, revolving grate, and stove regulator, J. S. & M. Peckham, Utica ..... Dip.
Coal sifters, Briggs, Davis & Chase, West Providence, Saratoga county ..... Dip.

No. 60. STOVES (PARLOR.)

1st premium, ornamental parlor stove, James Morrison, Jr., Troy, Empire gas burner ..... Dip.
1st premium, hall stove, H. Ruttan, Coburg, C. W. ..... Dip.
1st do sample of hollow ware, James Morrison, Jr., Troy ..... S. S. M.
Best and largest exhibition of stoves, James Morrison, Jr., Troy ..... Dip.

No. 61. LEATHER, &c.

Best specimens of trunks, B. F. Hotchkin, Watertown ..... Dip.
Best upper leather, Farwell & Baker, Watertown ..... Dip.
Best calf skins, Farwell & Baker, Watertown ..... Dip.
Best harness leather, Farwell & Baker, Watertown ..... Dip.
Best exhibition of boots and shoes, R. C. Combs, Watertown—favorable notice ..... Trans.
1st premium, carriage harness, B. F. Hotchkin, Watertown. Trans.
2d do Wm. H. Duval & Co., Utica $2
1st do single harness, B. F. Hotchkin, Watertown ..... Dip.
2d do W. H. Duval & Co., Utica $2
1st do saddle and harness for general purposes, W. H. Duval & Co., Utica ..... Dip.
1st do gents riding saddle, W. H. Duval & Co., Utica. Dip.

Discretionary.

Best boot tree, G. D. Melotte, Watertown ..... Trans.
Sole leather valise, J. K. Moffit, Watertown ..... Trans.

No. 62. CABINET WARE.

Best assortment of cabinet ware, Van Namee & Smith, Watertown ..... Dip.

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Discretionary.

Patent adjustable chair, Wood & Martin, Watertown ....Trans.

No. 63. Carriages.

Best double carriage, Jas. H. Colwell, Watertown..... Dip.
Best single top buggy, Wilson & Stewart, do ..... Dip.
Best single riding buggy, Jas. H. Colwell, do ..... Dip.
Best pleasure wagon, H. Scovil, do ..... Dip.
Best collection of carriages and wagons, James H. Colwell, Watertown..... Dip.
Best carriage springs, H. & E. F. Cooper, Watertown..... Dip.

Discretionary.

Two horse pleasure carriage, H. Scovil, Watertown.....Trans.
Skeleton wagon, Baker's patent hub, John C. Baker, Adams Centre ....Trans.
Carriage jack (Lane's patent), an excellent article, price $1.25 and $1.50, J. G. & W. G. Lane, Washington, Dutchess co. S. S. M.

No. 66. Sewing Machines.

Best family sewing machine, Wheeler & Wilson Manufacturing Co., New York ..... Dip.
Best machine for manufactories, Finkle & Lyon Sewing Machine Co., New York..... Dip.
Best double thread machine, Finkle & Lyon Sewing Machine Co., New York..... Dip.
Best sample of work on sewing machine, Finkle & Lyon Sewing Machine Co., New York ..... Dip.

No. 68. Domestic Pure Wines, &c.

Best Isabella wine, O. F. Presbrey, Buffalo..... Dip.
Best native wine, O. F. Presbrey, Buffalo..... ..... Dip.
Best red currant wine, S. M. Robinson, Watertown..... Dip.
Best elderberry wine, P. Hardy, Sanford's Corners, Jefferson county ..... Dip.
Best raspberry wine, O. E. Moody, Rodman, Jefferson co... Dip.
Best tomato wine, Mrs. Harriet Lamb, Fulton, Oswego co... Dip.
Best cherry wine, Mrs. Harriet Lamb, Fulton, Oswego co... Dip.
Best cider vinegar, Lewis Parker, 3 Mile Bay, Jeff. co..... Dip.

Discretionary.

Sweet water grape wine, Mrs. H. Lamb, Fulton... .....Trans.
Black currant wine, do do .....Fitch.
White currant wine, Mrs. H. Peck, Watertown.....Trans.
Currant wine, excellent article, Ellwanger & Barry..... Dip.

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No. 69. DISCRETIONARY.

Case revolvers; medly of steel engravings; rifle; J. L. Baker, Watertown ..... S. S. M.
Millinery, M. A. Hughes, Watertown ..... Dip.
Embroidery stamps, Alfred Pierce, Massillon, O ..... S. S. M.
Portable self-generating gas burner (Gray's patent) Ira Williams, Watertown ..... S. S. M.
Yankee beer, C. D. Egert, Albany ..... Dip.
Chewing tobacco, Benjamin Payn, Albany ..... Dip.
Joiners' tools, Wood & Martin, Watertown ..... Dip.
Specimens of oil and naptha, Miller & Butman, Buffalo ..... Dip.
O K soap; cream shaving soap; Pyles' chemical olive soap; dietetic saleratus; cream tartar; purified soda; James Pyle, New York ..... Dip. and S. M.
Tower's patent house broom, D. M. Smith, New York ..... Trans.
Farmer's windmill, H. Hecox, South Rutland ..... S. S. M.
Sash, blinds and doors, Sloat & Salisbury, Watertown ..... Dip.
Patent metallic burial case, S. W. Ballard, do ..... Dip.
Cesspool, James Morrison, Jr., Troy ..... S. S. M.
Specimens animals, birds, &c., William R. Trowbridge, Watertown ..... Dip. and S. M.
Flavoring extracts, O. G. Staples, Watertown ..... Dip.
Mineral and geological specimens; perfumery; O. G. Staples, Watertown ..... Kemp on Gardening.
Fancy fans, P. Gallagher, Philadelphia, Pa. ..... S. S. M.
Pig iron, manufactured by the Oneida Iron and Glass Co., at Taberg, Oneida co., E. B. Armstrong, Rome ..... Dip.
Portable camp cot, lounge and chair combined, Gurley & Brady, New York ..... Dip. and S. M.
Traveling bag, Charles Dow, Watertown ..... Dip.
Artificial legs, Dr. D. Bly, Rochester ..... Dip.
Independent and spring-toothed hay rake (model), E. Buckman, East Greenbush ..... Trans.
Fancy horse blankets, B. F. Hotchkin, Watertown ..... Trans.
Bullard's hay spreader and turner (model), Samuel Harrington, New Braintree, Mass. ..... S. S. M.
Specimens of fireworks, John G. Bragger, Watertown ..... Dip.
Scent sachet, Miss Henrietta Gross, Watertown ..... S. S. M.
Coach and saddlery hardware, Olmsted & Jones, Syracuse. Trans.
Doors, sash and blinds, H. E. Farnham, Watertown ..... S. S. M.

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Animal traps, L. S. Heath, Adams Centre ..... Trans.
Burglar protector, do do ..... Trans.
Indian bows and arrows, Geo. Webb, Watertown ..... Trans.
Axe helves, R. Horr, do ..... Trans.
Perfumery, J. A. St. Ange, do ..... Trans.
Kersey and linen bags, S. Snell, do ..... Trans.
Gent's dressing case, Miss P. F. Hubbard, Watertown ... S. S. M.
Carriage top (model), P. Boyden, Sandy Creek ..... P. O. R.
Refined petroleum oil, F. S. Pease, Buffalo ..... S. S. M.
Lime dusters, Levi Disbrow, Oswego ..... Fitch.
Coal oil, terpentoleum, E. A. Watrous, president Ogdensburgh Oil Co., Ogdensburgh ..... S. S. M.
Artificial teeth, B. F. Wiggins, Seneca Falls ..... Trans.
Case of butterflies, E. Mosher, Le Raysville ..... Fitch.
Clothes wringer, J. S. Holmes, agent, Bradford Station, Westchester county ..... S. S. M.
Parr's patent American camp chest, Ball, Black & Co., New York ..... Gold Medal.
Children's clothing, Mrs. D. D. Otis, Watertown ..... Trans.
Horse shoe and horse shoe machine, H. Burden & Son, Troy. Dip.
Colby's patent clothes wringer, Howden, Colby & Co., Waterbury, Conn. ..... Dip.
Petroleum tar, Miller & Butman, Rochester ..... Dip.
Extension bit, F. R. Stackhouse, Omar, Jefferson co. ..... Dip.
Crystal carbon oil, J. E. Holmes, agent, Meadville, Pa. ..... S. M.
Dentistry, Tremain Bros., Rome ..... Dip.
Samples and designs Mosaic flooring, C. C. F. Otto, Pulaski. Dip.
Axe helves, L. Fortune, Le Raysville ..... Trans.
Printer's stick, Joel McComber, Watertown ..... Dip.
Lantern cane, Goodenough & Vibbard, Shingle Creek, St. Lawrence county ..... Trans.
Portable barometer, Chas. Wilder, Peterborough, N. H. ..... Dip.
Trusses and abdominal supporters, L. Babbitt, Plattsburgh. Dip.
Card writing, M. D. Gardner, Rome ..... S. S. M.
Water-proof blacking, M. E. Turner, Potsdam ..... Trans.
Anti-rattle shaft shackle, Gage & Kingsbury, Homer ..... Dip.

CLASS VIII.—HORTICULTURAL DEPARTMENT.

No. 70. Class 1.—Professional List.

Cut Flowers.

For the best display, Ellwanger & Barry, Rochester $10
2d do Smith & Hanchett, Syracuse ..... S. M.

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Dahlias.

Best collection, Smith & Hanchett, Syracuse $6
Best 24 dissimilar blooms, Smith & Hanchett, Syracuse 5
Best 12 dissimilar blooms, Smith & Hanchett, Syracuse 3
Best American seedling, not before exhibited, Smith & Hanchett, Syracuse 1

Roses.

For the greatest number, newest and best varieties, Ellwanger & Barry, Rochester 6
2d do Smith & Hanchett, Syracuse 3
For the newest and best 24 distinct varieties, Ellwanger & Barry, Rochester 5
2d do Smith & Hanchett, Syracuse 3
For the newest and best 12 varieties, Ellwanger & Barry, Rochester 3
2d do Smith & Hanchett, Syracuse 1
Committee suggest two classes of roses, hardy and tender.

Phloxes.

For the greatest number, newest and best varieties, Ellwanger & Barry, Rochester 5
2d do Smith & Hanchett, Syracuse 3
For the best 12 varieties, Smith & Hanchett, Syracuse 3
2d do Ellwanger & Barry, Rochester ... 1
For the best new seedling, not before exhibited, Ellwanger & Barry, Rochester 1

Carnations.

For the best display, monthly carnations, Smith & Hanchett, Syracuse 3

Verbenas.

For the greatest number of newest and best varieties Smith, & Hanchett, Syracuse 5
Newest and best 12 varieties, Ellwanger & Barry, Rochester, 3
2d do Smith & Hanchett, Syracuse . 1
Best collection, 3 varieties of American seedlings, not before exhibited, Smith & Hanchett, Syracuse 1

German Asters.

Best collection, Ellwanger & Barry, Rochester 3
2d do Smith & Hanchett, Syracuse 1

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Pansies.

Best collection, Smith & Hanchett, Syracuse $3

Ten Week Stock.

Best collection, Smith & Hanchett, Syracuse 3

No. 71. Class 2. Amateur List.

Cut Flowers.

For the best display, Myron Beebe, Watertown 10
2d do Mrs. J. T. Van Namee, Pittstown, Rens. co., 5
3d do W. Newcomb, Johnsonville, Rens. co. ..Trans.

Dahlias.

For the greatest number, newest and best varieties, Wm. Newcomb, Johnsonville $6
Best 12 dissimilar blooms, Wm. Newcomb, Johnsonville 3
Best 6 do do do do 2
2d do do Mrs. J. T. Van Namee, Pittstown, 1

Roses.

Best 12 varieties, J. T. Van Namee, Pittstown 3

Carnations.

For the best display, J. T. Van Namee, Pittstown 3

Verbenas.

For the greatest number of newest and best varieties, Myron Beebe, Watertown 5
2d do do L. B. Legg, North Scriba, Oswego co., 3
Best 12 distinct varieties, Mrs. J. T. Van Namee, Pittstown, 3
2d do do Wm. Newcomb, Johnsonville 1
Best 6 varieties, do do 2
2d do D. S. Heffron, Utica 1
For the best seedling, not before exhibited, Myron Beebe, Watertown 1

Phlexes.

Greatest number of newest and best varieties, Mrs. W. M. Johnson, Adams 5
2d do do Myron Beebe, Watertown.. 3
Best 6 varieties, Mrs. J. T. Van Namee, Pittstown 2
2d do Wm. Newcomb, Johnsonville 1
Best seedling, not before shown, Mrs. J. T. Van Namee, Pittstown 1

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German Asters.

Best collection, Mrs. O. Paddock, Watertown $3
2d do Mrs. Henry Wier, Johnsonville 1

Pansies.

Best collection, Myron Beebe, Watertown 3
2d do Mrs. J. T. Van Namee, Pittstown 1

Ten Week Stock.

Best display, H. Converse, Pamelia 3
2d do Myron Beebe, Watertown 1

Discretionary.

Best seedling Petunias, D. S. Heffron, Utica 1
Night blooming Cereus, Eliza S. Herrick, Watertown 1

No. 72. General List.

Pot plants.

Best collection of house plants, in pots, 20 different specimens, B. F. Hotchkin, Watertown $10
Best 10 plants, in pots, Mrs. P. J. Tallman, Orleans, Jeff. co.. 5
2d do Mrs. Jas. F. Starbuck, Watertown... 3

Floral design.

Best, W. W. Herrick, Watertown 5
2d best, J. H. McCombs, Watertown 3

Bouquets.

Best pair hand, Ellwanger & Barry, Rochester 5
2d do Mrs. O. Paddock, Watertown 3
Best pair parlor, Ellwanger & Barry, Rochester 5
2d do J. H. McCombs, Watertown 3
Best basket bouquet, Mrs. W. W. Green, Watertown 5
2d do Miss Mary E. Staples, Watertown.... 3
Best display of newly introduced flowers, not contained in the foregoing lists, Mrs. J. T. Van Namee, Pittstown, Rensselaer county 5

Discretionary.

Two specimens Amaryllis, Royal Wilcox, Watertown ....Trans.
One specimen Oleander do do .... Fitch.
Flowering maple, J. W. Sargent, Stone Mills, Jeff. co. ....Trans.

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No. 73. Class 1. Professional List.

Apples.

Best 40 varieties, Ellwanger & Barry, Rochester $15
Best 20 varieties, Smith & Hanchett, Syracuse 10
Best 12 do do do 5
2d do Nathan Talcott, Adams 3

Pears.

Best 20 varieties, Ellwanger & Barry, Rochester 15
2d do Smith & Hanchett, Syracuse 10
Best 15 varieties, Ellwanger & Barry, Rochester 10
2d do Smith & Hanchett, Syracuse 5
Best 10 varieties, do do 8
2d do Ellwanger & Barry, Rochester 4
Best 6 varieties, Smith & Hanchett 5

No. 74. Professional List.

Grapes.

Greatest number of good native Grapes, Smith & Hanchett, Syracuse 5
2d do Joseph Kellogg, Ithaca 3
Best one variety, six bunches, D. S. Heffron, Utice 2
Foreign Grapes, grown under glass, two bunches of each, Ellwanger & Barry, Rochester 6
2d do Joseph Kellogg, Ithaca 3

The branch of grapes exhibited by D. S. Heffron, of Utica, was grown with two others upon a vine started from a single eye, in a hot bed, in April, 1860. The young vine was planted out in the open ground in June, 1860, and this season it has ripened two strong shoots, each twelve feet long, and a third six feet, and matured three bunches of fruit.

Sample pears grown on Mountain Ash, fair and handsome fruit, D. L. Halsey, Victory, Cayuga county ..... Trans.

No. 75. Class 2. Amateur List.

Apples.

Best 20 varieties, Edward North, Clinton, Oneida county .. $12
2d do Willard Ives, Watertown 8
Best 15 varieties, best grown, R. H. Avery, Wampsville, Madison county 10
2d do R. C. Brown, Rochester 5

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Best 10 varieties, R. C. Brown, Rochester $5
2d do Daniel Parker, Watertown 3

Pears.

Best 6 varieties, R. H. Avery, Wampsville 8

Discretionary.

Dish of old apples, Benj. Maxon, Stowell's Corners ..... Dip.
Variety of apples, N. Jones, Hounsfield ..... Dip.
Crab apples, Lewis Parker, Three Mile Bay ..... Dip.
Crab apples, L. D. Olney, Watertown ..... Dip.

No. 76. AMATEUR LIST.

Plums.

Best 10 varieties, G. W. Lawrence, Oswego $5

Grapes.

Greatest number of good native varieties, D. S. Heffron, Utica, 5
2d do do Geo. Beck, Greece, Monroe co... 3
Best single variety, 6 bunches, "Catawba," D. W. C. Deforest, DeFreestville, Rensselaer county 2
Foreign grapes, grown under glass, two bunches of each, F. B. Hubbard, Watertown 6
Two bunches Ontario grapes, fine specimens, O. F. Presbrey, Buffalo ..... Dip.

Watermelons.

Greatest number of varieties, and best specimens, A. Campbell, Hounsfield $5
2d do L. Littlefield, Woodville 2

Muskmelons.

Greatest number of varieties and best specimens, A. Campbell, Hounsfield 2
Best specimen any variety, L. Littlefield, Woodville ..... Trans.

Cranberries.

Best peck domestic cultivated, Daniel L. Halsey, Victory, Cayuga county $5

Discretionary.

Fig tree with fruit, fine specimen, L. D. Olney, Watertown. Trans.

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TWENTY-FIRST ANNUAL FAIR.

The twenty-first annual fair of the New York State Agricultural Society has just closed, and considering the state of the country, it is one that does great credit to the farmers and mechanics of the northern section of the State, as well as to those exhibitors from remote sections of the State, and the British possessions, whose contributions added largely to the attractions of the show.

The several departments were in the main well represented. Cattle, sheep and swine were excellent, and the latter excelled any previous exhibition in our State.

The horse department, contrary to all expectation, was not well represented from the northern counties, from which much of our valuable stock for market is purchased. Several valuable horses were present from other portions of the State and Canada. We refer to the awards of premiums as evidencing the portions of the State from which the prize awards came.

The machinery and implement department was well represented. The judges faithfully discharged their duties and adhered to the rules of the society, and it is believed gave general satisfaction.

Fruit was not in abundance. Ellwanger & Barry, and Smith & Hanchett, contributed the largest display to this department.

The display of flowers was of unusual richness and variety, and has seldom been equalled. The arrangements upon the grounds, under the direction of John Harold, General Superintendent, were all that could be desired. The officers of the society in attendance were efficient in the discharge of their duties.

The utmost order was maintained during the entire exhibition, and the magistrate, Esq. Emerson, of Watertown, and the police, were vigilant in the discharge of their duties.

Receipts as reported by the treasurer, $7,910.65.

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EXECUTIVE MEETING.

September 16, 1861.

Present, Geo. Geddes, President; Wm. Kelly, B. N. Huntington, T. S. Faxton, ex-Presidents; S. D. Hungerford, S. Wm. Johnson, E. Cornell, Vice Presidents; John Winslow, T. C. Peters, E. Sherrill, Executive Committee; L. H. Tucker, Treasurer; B. P. Johnson, Secretary.

Minutes of last meeting read and approved.

Police appointed, (see list on file,) and warrants issued.

September 17.

Present, in addition to the 16th, Messrs. Conger, Thorne and Corey.

The Arabian horses which had been in charge of G. W. Bathgate & Co., Fordham, were returned, for their disposition by the executive committee for the ensuing year.

Messrs. Huntington, Hungerford, Cornell and Corey, were appointed a committee to report to the board as to their disposition for the ensuing year.

Vacancies in committees were supplied.

September 18.

Board as before.

The committee on the Arabian horses reported, recommending that the horses be separated—one, (the oldest horse,) to be kept in the northern part of the State; the youngest, in the southern tier or western part of the State.

The subject was continued with the same committee, who were authorized to make arrangement for their disposition, if it could be done without expense to the Society, and the proceeds for service, after paying expense of care and keep, to be paid to the Society for the disposal of Gov. Seward.

Information having been received that the mayor and common council of Kingston would attend the fair in a body on Wednesday or Thursday, Messrs. Kelly, Conger and Huntington, were appointed a committee to receive the delegation from Canada, in connection with a committee of the corporation of Watertown, of which President Babcock is chairman.

September 19.

Board met. Committee on Arabian horses reported that they had made arrangements with Solon D. Hungerford, of Adams, Jefferson county, to take charge of the bay horse, and Ezra Cor-

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nell, of Ithaca, Tompkins county, the sorrel colt, and that they had entered into written engagements to take charge of them upon the terms stated in the report of the committee—the horses to be returned to the Society at its next annual fair, for future disposition. (It being understood that Mr. Hungerford should allow mares, if suitable ones should be offered, to be served from St. Lawrence, Jefferson, Oswego and Lewis counties, in proportion to their stock of horses by last census—the terms of service of the horses to be fixed by Messrs. Hungerford and Cornell.).

Report of committee laid on table, and committee discharged.

Messrs. Foot and Hurlburt, of St. Lawrence county, presented a request that the bay horse be assigned to St. Lawrence, and that if so assigned, they would enter into an agreement to take charge of him and guarantee to the board five hundred dollars for his services, over and above the expense of his keeping.

The board, after full consideration, decided to confirm the agreement made by the committee with Messrs. Hungerford and Cornell for the services of the horses for the ensuing year—and the agreements executed were placed on file.

DAIRY SALT.

Report of Prof. Charles Porter, chemist of the Society, on salt for the dairy, manufactured by the Salt Company of Onondaga, was presented, read and approved, and ordered published.

STATISTICS.

On motion of Mr. Geddes:

Resolved, That the statistics furnished the Society by Tompkins county agricultural society are not only valuable, as elucidating the profits of farmers, but are suggestive of the duties we owe to our brother farmers to have these statistics extended over the State.

Resolved, That the executive committee be requested to inquire into the expediency of furnishing, at the expense of the Society, blanks for circulation in the various counties of the State.

Messrs. Huntington, Hungerford, Johnson and Tucker, were appointed a committee to audit the accounts of expenditures during the fair.

AGRICULTURAL DISCUSSIONS.

The meetings were fully attended, and were of great interest.

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September 20.

Society met in Domestic Hall, and was called to order by the President.

Rev. Mr. Babcock, of the Episcopal Church, Watertown, opened the exercises by an appropriate prayer.

The President then introduced the Hon. Wm. M. Evarts, of New York, who delivered an able address to a large audience. At its close, on motion of Hon. Benj. N. Huntington, ex-President of the Society:

Resolved, That the thanks of the Society are most cordially tendered to the Hon. Wm. M. Evarts, for his able and patriotic address, and that he be respectfully requested to furnish a copy of the same for publication in the Transactions of the Society.

Hon. Preston King, United States Senator, being on the stand, was called out by the audience, and responded in some very appropriate remarks.

Hon. John A. Sherman requested the privilege of calling upon the audience for three cheers, as approving of the able and patriotic address just delivered; and the same were given most cordially.

The Secretary then announced the premiums from the stand, and the Society adjourned.

NEW YORK AGRICULTURAL SOCIETY.

September 21.

The Executive Committee met at the Woodruff House. Present, Messrs. Geddes, Huntington, Hungerford, Cornell, Tucker and Johnson.

The Twenty-first Annual Exhibition of the New York State Agricultural Society having drawn to a close, and resulted as successfully as its most devoted friends could have hoped for, in view of the distracted condition of our country, and the derangement of business, it is due to those who have aided by their valuable assistance and personal influence, as well as by their liberal contributions, to the result, that a public acknowledgment thereof should be made.

The ladies of Watertown, for the exquisite skill and taste evinced by them in the decorations of Floral Hall, and their untiring exertions in aid of the exhibition, are deserving of the

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high encomiums which have been so lavishly bestowed upon them for their handiwork, by the press and the public.

To A. M. Utley, Esq., the superintendent of Floral Hall, and his associates, the Society and the public are greatly indebted for the beauty and novelty of design, and the admirable manner in which everything connected with this department was conducted.

The citizens of Watertown, for the generous hospitality extended to the officers of the Society and its guests, as also to the thousands of strangers who visited their beautiful village during the week, will long be remembered by the recipients of their manifold attentions with feelings of the highest regard.

President Babcock and the corporate authorities of the village exerted themselves diligently in every possible manner to ensure success to the exhibition, and their efforts are fully appreciated, and hereby duly acknowledged.

The local committee performed their difficult and very laborious duties to the entire satisfaction of the Executive Committee, cordially co-operating with the committee in perfecting every necessary arrangement for the exhibition, and, by their personal attention and endeavors, largely contributing to its complete and triumphant success.

Especial praise is due to the various railroad and steamboat corporations, and to the proprietors of the various lines of communication for their liberality in transporting articles to and from Watertown free of charge. And to the Rome, Watertown and Ogdensburgh railroad company, particularly, are exhibitors indebted for the prompt manner in which they accommodated them by the speedy forwarding of articles homeward.

Addison Day, Esq., the gentlemanly superintendent of the Rome, Watertown and Ogdensburgh railroad company, is entitled to the hearty thanks of the Executive Committee and the employees of the Society, as well as the exhibitors and those who attended the fair, for the perfection of all his arrangements, his kind attentions and personal supervision of matters connected with the transportation of stock, &c., and for the liberal spirit evinced by him.

We desire to express our obligations to D. Dorsey, Esq., and family, of the Woodruff House, for their unremitting attentions to the officers of the Society and those connected with it, and to its guests. They may be assured that their efforts were entirely

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successful, and highly appreciated by all who enjoyed their hospitality and courteous treatment.

The gentlemen of the press of Watertown will accept the assurances of the Executive Committee, that their services in aid of the exhibition entitle them to the cordial thanks of the committee.

To the police justice, Fred. Emerson, Esq., their acknowledgments are also due, for his untiring and efficient efforts in the preservation of order.

The services of John Harold, Esq., general superintendent of the grounds, notwithstanding their arduous and multifarious character, were performed in the most prompt and efficient manner, and to the entire satisfaction of the Executive Committee. The committee desire to express to him their acknowledgments of his labors, and to convey to him their assurance of high regard and personal esteem. They are also indebted to the superintendents of the several departments of the exhibition, and to their assistants, for their courteous and unremitting attention to the duties assigned them.

The clerks in the business and treasurer's offices discharged their respective duties in such a manner as to merit the highest praise for their business qualifications. The clerks in the business office, especially, performed their labors with extraordinary despatch, and have the satisfaction of knowing that not a single complaint was made, in any department. The Executive Committee desire to express their thanks to them for their fidelity and strict and careful attention to their duties. Notwithstanding the necessary haste attendant upon the receipt of so large a sum of money, in so short a time, by the clerks in the treasurer's office, not a single counterfeit or worthless bill, and no "bogus" specie of any sort was taken, although the usual amount was offered.

The farmers of the northern counties of the State contributed more largely to the success of the exhibition than those of any other section of the State, and for this the thanks of the committee are eminently due to them; and no less to the judges and committees whose arduous labors were in all cases cheerfully and promptly performed.

To the citizens of Watertown generally, for the zeal manifested by them in aiding the local committee and the Executive Committee of the Society in the preparations for the fair, and their hearty co-operation in every undertaking calculated to ensure its

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success, especial praise is due. Notwithstanding the unsettled state of business throughout the country, the success of the fair has been complete and triumphant in every particular, which is the most satisfactory acknowledgment of their exertions that could be rendered.

There being no further business, the Board adjourned to meet at the call of the President.

WATERTOWN, *September* 21, 1861.

B. P. JOHNSON,
Secretary N. Y. State Ag. Society.

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PREMIUMS AWARDED AT ANNUAL MEETING.

FARMS.

Grain and Dairy Farm.—To Jason C. Osgood, Sullivan, Madison county, 1st premium. Silver Medal to Mr. Osgood, and Diploma to Nelson Moyer, manager of the farm.

Draining.—Jonathan Talcott, Rome, $20.

CROPS.

Wheat.—1st premium, Sylvester Curtis, Clinton, Oneida county, two acres and 1,500, 84 bushels. Profit $96.75. $15.

Rye and Oats.—Mr. C. L. Kiersted, of Kingston, Ulster county, entered for competition two crops of oats and two crops of rye. The committee decided that as Mr. Kiersted received premiums on crops of rye and oats a year ago, they would recommend him a Certificate of the Society, for having sustained his reputation for raising the largest crop of rye and oats entered for premium.

Peas.—Norman Gowdy, Lowville, Lewis county, entered a crop of peas, $1\frac{70}{100}$ acres; yield 60 bushels, at a profit of $31.71, is a good one, and the sample exhibited, of excellent quality. No statements accompany Mr. Gowdy's application, which prevents the committee awarding him a premium.

GRAIN AND SEEDS.

[Samples of one bushel of each.]

Winter wheat.—1st premium, C. W. Eells, Lairdsville, Oneida county, $3.

Spring wheat.—1st premium, Amos Goulding, Pamelia Four Corners, Jefferson county, $3; 2d, C. W. Eells, Lairdsville, $2; 3d, Ai Pine, Pittstown, Rensselaer county, $1.

Rye.—1st premium, Ai Pine, $3; 2d, Amos Goulding, $2; 3d, A. E. Van Allen, De Freestville, Rensselaer county, $1.

Barley, four-rowed.—2d premium, Hiram Mills, Lowville, Lewis county, $2.

Barley, two-rowed.—2d premium, Amos Goulding, $2.

Oats.—1st premium, C. W. Eells, $3; 2d, Hiram Mills, $2.

Buckwheat.—1st premium, L. L. French, Richfield Springs, Otsego county, $3; 2d, Charles W. Eells, $2; 3d, H. Wier, Johnsonville, Rensselaer county, $1.

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Yellow corn.—1st premium, C. W. Eells, $3; 2d, Ai Pine, $2; 3d, H. Wier, $1.

D. A. Buckley, Williamstown, Mass., 14 varieties corn, fine collection, Trans. and Downing.

White corn.—1st premium, H. Wier, $3; 2d, A. E. Van Allen, $2.

Beans.—1st premium, Ai Pine, $3; 2d, Amos Goulding, $2; 3d, H. Wier, $1.

Peas.—1st premium, Amos Goulding, $3; 2d, Norman Gowdy, $2; 3d, H. Wier, $1.

Flax seed.—1st premium, H. Wier, $3; 2d, L. L. French, $2; 3d, H. Wier, $1.

Timothy seed.—2d premium, Norman Gowdy, $2.

BUTTER AND CHEESE.

Fall butter.—3 tubs, 1st premium, Ai Pine, $15.

Winter butter.—1 jar, 1st premium, Clift Eames, Watertown, $5; 2d, Norman Gowdy, $3; 3d, Amos Goulding, Trans.

Discretionary.—J. L. Rice, Pamelia, jar butter, Trans.; John Robinson, Cambridge, jar butter, Trans.; Norman Gowdy, Lowville, jar butter, Trans.; Mrs. Hiram Mills, Lowville, jar butter, Trans.

Cheese.—1st premium, Norman Gowdy, $15; 2d, Clift Eames, $10; 3d, Ai Pine, $5; 4th, E. F. Carter, Evans Mills, Jefferson county, Trans.

Discretionary.—Jason C. Osgood, Troy, a good specimen of cheese. Exhibition only.

Ai Pine, very fine specimens of turkeys, ducks and chickens, Poulterer's Companion.

Mrs. Henry Wier presented a very attractive pyramid of flowers, and was awarded a Diploma.

FRUIT AND WINES.

Apples.—20 varieties, 1st premium, Ellwanger & Barry, Rochester, $4; 15 varieties, 1st premium, W. H. Slingerland, Norman's Kill, $3; 2d, Ai Pine, $1.

Seedling apple.—John Harold, Esq., Hempstead, Queens county, exhibited a seedling which promises to be a valuable variety.

Pears—Collection of, 1st premium, Ellwanger & Barry, S. Medal and Dip.

Grapes.—Catawba, 1st premium, R. P. Wiles, Albany, S. S. M.

Isabella wine, 1st premium, Joseph Torrey, Albany, two years old, good article, Dip.; Elderberry wine, 1st premium, Joseph Torrey, Dip.; Clinton wine, C. O. Valentine, Cambridge, Washington county, Dip.; Clinton brandy, C. O. Valentine, Dip.

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DAIRY FARMING:

ITS ADVANTAGES AND THE MEANS FOR ITS IMPROVEMENT.

By X. A. Willard, A. M., Little Falls, Herkimer Co.

Considerable attention has been given, of late, to so systemize the business of dairy-farming, that, while the annual products of the farm may be increased, its expenses are diminished.

Dairying embraces a wider field of operations, it is believed, than where almost any other kind of farming is made a specialty; since, in addition to the manufacture and management of dairy-produce, particular branches of farming are also to be regarded as specialties, and being so closely linked together, the success of the dairyman depends more or less on his intelligence in reference to, and proper management of them all.

Cheese making, of itself, in all its details, is an art which requires much knowledge, and long, careful, and varied practical experience. And yet the success of the dairy-farmer will not depend, altogether, on his ability to manufacture the largest quantity, and best quality of cheese from a given quantity of milk. Back of this lies the production of milk—the breeding—care and treatment of stock, and further back, the production of food, the application of manures, and all the various operations of cultivating the soil, and growing crops.

It is estimated there are considerably more than one million of milch cows in the State of New York, and the number of acres employed for raising grain, grass, hay, &c., for their maintenance through the year, will doubtless exceed four millions, or nearly if not quite a quarter of all the improved land in the State. The capital invested in land, cows, and utensils for conducting the dairies of the State, on the above assumption, will reach at least $140,000,000. While the value of labor annually required, can not fall short of $20,000,000.

Thus it will be seen, $160,000,000 in capital and labor, are annually devoted to this business in the State of New York alone.

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The average annual produce of all the cows in the State,* if represented in cheese, it is believed would fall below 300 pounds per cow, which at seven cents per pound, would in round numbers amount to $21,000,000. But the average should be made to reach at least 500 pounds per cow, or $35,000,000, showing an annual loss of $14,000,000. This estimated loss can not be regarded as too high, since even in old dairy districts, and among practiced dairymen, from imperfect dairy products, poor stock and their improper treatment, injudicious management of pasture and meadow lands, and in the securing of crops, immense losses in the aggregate are annually sustained.

A plain, practical treatise on dairy-farming, a treatise that shall describe minutely the best methods of conducting the business is much needed. Enough, perhaps, has been written, from time to time, on the subject, but it is scattered throughout various agricultural journals, and in volumes of reports, and therefore is not available to the great mass of readers. Much that is written too, is found to be for the most part theoretical, and either not yet proved of practical utility, or advising what would require too great an outlay of capital, and therefore beyond the means of the majority of farmers. Yet it is not too much to affirm, that dairymen, generally, have within their reach all the elements and means necessary for their complete success, if each would avail himself of the experience of others, in all that tends to improve the dairy, or the several branches of the business in which he is engaged. He should bear in mind that it costs as much to keep a poor cow as it does a good one, and that no more

* The State census for 1855, gives the number of cows in Herkimer county at 36,653; improved land, 267,414 acres; pastures, 122,730 acres; butter made, 1,305,377; pounds cheese, 9,068,519; milk sold, 54,960 gallons.

The number of cows in the State is put down at 1,068,427; butter, 90,293,073 pounds; cheese, 38,944,249 pounds; gallons of milk sold, 20,965,861; pastures, 4,984,114 acres.

The U. S. census, 1860, gives the number of cows in Herkimer county 41,566; improved land, 279,398½; butter, 1,251,872 pounds; cheese, 10,901,522 lbs.; milch cows in the State, 1,128,634. The amount of pasture land is not given.

The following table will show the number of pounds of butter and cheese made in 1850, according to the census of that year, in the six leading dairy States of the Union, or in those States reported as making over 3,000,000 pounds of cheese:

	No. cows.	Lbs. butter.	Lbs. cheese.
New Hampshire	94,277	6,977,056	3,196,563
Vermont	146,128	12,137,980	8,720,834
Massachusetts	130,099	8,071,370	7,088,142
Connecticut	85,461	6,498,119	5,363,277
Ohio	544,499	34,449,119	20,819,542
New York	931,324	79,766,094	49,741,413
Total	1,891,788	147,899,992	94,929,771
Total in United States	5,248,633	313,266,962	105,535,219

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expense is incurred in manufacturing the finest qualities of butter and cheese, which are readily sold at high prices, than it does a poor article, which drags in market, and not unfrequently is wholly unsaleable.

In the volume of Transactions for 1860, I gave a brief outline of the manner in which cheese-dairying was conducted in Herkimer county; in the present treatise it is proposed to further elucidate the subject, and to present some suggestions on points not fully discussed in that paper.

PASTURES—THEIR TREATMENT, &C.

Before entering upon the business of dairying, it will be well to consider whether the land is adapted to grazing—whether it has springs, and streams of pure and never-failing water, and so located that stock can readily and at all times slake their thirst, without being driven, or obliged to make a special journey for the purpose.

A scarcity of water, or where it is poorly located on extreme or out of the way parts of a farm, will tell heavily on the production of milk during the season, even though the animals have an abundance of food.

Milch cows are averse to traveling out of their way to obtain water, and will often endure thirst for hours, rather than leave the herd on a special journey for it; they do not need much exercise, and should be subjected to as little as possible. Hence when nutritious food is abundant, and pure water of easy access, so that quietness may be maintained in the herd, the best results are obtained.

The management of pasture lands, will be different with different soils. Broken and uneven surfaces, hard to be tilled—hill sides, where the surface lies near rock—thin or sandy soils, it is evident must be studied as to their character, and treated according to the peculiar circumstances or difficulties that may surround each.

Lands natural to grass—and these embrace a greater portion of the clays and shales—produce pasturage year after year continuously, if properly attended to, and would often be injured for pasture by plowing and re-seeding. The impression sometimes prevailing that newly seeded meadows producing large yields of one or two kinds of grass for hay, would, if turned to pasturage, be equal to, or of more value than good old pastures for grazing milch cows, is erroneous. Rich, old natural pastures, have been found to con-

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tain 1,000 plants to the square foot, having twenty distinct species of grasses, and the newly seeded ground would require to lie many years to get that thick matted sward, and of so many species of grasses, at least when seeded, as is common, with two or three favorite species.

The following table and remarks, from Flint's work on grasses, may not be out of place in this connection. Be it understood, however, in the remarks above, or hereafter to be made, we are not deprecating a judicious rotation of crops on dairy farms, nor advocating the continuance of a pasture because it happens to be *old*. Pastures will fail and become foul, and the grass scanty and poor; such lands need breaking up from time to time, and are vastly improved by thorough cultivation, and with increased quantity and quality of products when again laid down in grass. But the practice common with some, of breaking up large fields of good, clean, sweet sod, which perhaps may have been a trifle injured by the too close cropping for a season, in order to raise grain for a few years, and frequently too without the application of manures, is believed to be pernicious.

We have seen rich, old pastures, solid in growth, and yielding largely, plowed up, for the reason that a good crop of corn was wanted, and *that* particular field seemed best suited to the purpose. It did produce good grain crops, but after being got back again into grass, the annual yield was very much less than on the old turf.

AVERAGE NO. OF PLANTS AND SPECIES TO THE SQUARE FOOT OF SWARD.

Character of the Turf.	Whole No. of plants on the square foot.	Natural grasses.	Clover and other plants	Dis. species.
1. A square foot taken from the richest natural pasture capable of fattening one large ox, three sheep to the acre, was found to contain	1,000	940	60	20
2. Rich old pasture capable of fattening one large ox and three sheep, per acre	1,090	1,032	58	--
3. Another old pasture contained	910	880	30	12
4. An old pasture of a damp and mossy surface	634	510	124	8
5. A good pasture two years old, laid down to rye grass and white clover	470	452	18	2
6. A sod of narrow leaved meadow grass (poa angustifolia,) 6 years old	192	----	---	1
7. A sod of meadow foxtail, by itself, six years old	80	----	---	1
8. Rye grass, by itself, same age	75	----	---	1
9. Meadow, irrigated & carefully man'd,	1,798	1,702	96	--

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"These plants in each instance," says Mr. Flint, "were counted with the utmost care by a farmer now living in this State, (Massachusetts) then in the employ of Mr. Sinclair, and the correctness of his results may be relied on.

"Now it is a well known fact that the sward of a rich old pasture is closely packed, filled up, or interwoven with plants, and no vacant spaces occur. Yet in a closely crowded turf of such a pasture, only one thousand distinctly rooted plants were found on a square foot, and these were made up of twenty different species. The soil should be supplied with a proper number of plants, else a loss of labor, time and space will be incurred; but however heavily seeded a piece may be with one or two favorite grasses, small vacant spaces will occur, which, though they may not seem important in themselves, when taken in the aggregate, will be found to diminish very considerably the yield of an acre, even if they are so small as not to be perceived. And undoubtedly some allowance should be made for the seeds and young plants destroyed by insects, birds and various accidental causes; but even after all deductions for these, we see that in this State, at least, there is no deficiency in the quantity of seed used, and the imperfectly covered ground cannot be explained in this way."

Sinclair too says: "When an excess of grass seed is sown, the seeds, in general, all vegetate, but the plants make little, if any progress, until from the want of nourishment to the roots, and the confined space for the growth of foliage, a certain number decay, and give the requisite room to the proper number of plants; and that will be according as there are a greater or less variety of different species of grasses combined in the sward."

Old pastures that have a fine thick herbage of several kinds of grasses adapted to the soil, and coming to maturity at different seasons, will generally be found to produce more milk and from which a richer, better flavored, and finer quality of butter and cheese are manufactured, than from the rank growth of grasses on newly seeded lands. Again, newly seeded lands will not bear that close cropping, nor will they endure drouth like permanent pastures.

Doubtless when the land has been underdrained, deeply subsoiled, enriched, and then seeded with a judicious admixture of grasses of the several species best adapted to the soil and climate, a permanent pasture of the best character may be soon obtained, and would amply pay all expenses for such cultivation. Yet few

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comparatively, can be induced to enter upon this system of farming, and the next best course is to be considered.

In the treatment of old pasture lands, injured from close cropping, or other causes, but not wholly run out, it will generally be better not to break up, but to leave them for a part of the season to resuscitate, running a harrow over the ground in early spring, and sowing a mixture of timothy, blue grass, red top, the clovers, red and white, and orchard grass, making an application of plaster, pulverized bones, ashes, salt, or other stimulating fertilizers. Ashes, leached or otherwise, remove mosses and are a valuable application to grass lands.

There are pastures in Herkimer county, which have not been broken for more than forty years—many that have never been ploughed perhaps but once or twice, years ago when the country was new, that are yielding an abundance of nutritious food, enduring year after year, close cropping and drouth, without any perceptible injury or tendency to run out, and yet have received no top dressings, beyond the usual application from time to time of gypsum. The grass on these lands springs up green and fresh, with thick fine bottom, a marked contrast throughout the season, to occasional patches on the same soil, recently re-seeded. Stock too, it will be observed, are to be more frequently found on these pastures, thus showing that the grass is sweeter or more nutritious, than on the newly seeded parts.

To plow and cultivate such lands, would be to destroy the original grasses, and after re-seeding, many years must intervene before the new grasses can obtain that firm possession of the soil, and the enduring vigor and variety of the old sod.

The reasons for the successful growth of these natural grasses, need not here be discussed—the decomposition of leaves, wood, roots and other vegetable matter for centuries, seems to have accumulated a surface soil, capable of supplying the best possible food, for growing these plants in perfection, which intermixed as they are with artificial grasses, timothy, clover, &c., form a more closely matted sward, and produce an herbage more nutritious, and better adapted to the animal system, than that from newly sown seeds on recently cultivated lands.

There are large tracts of country, the soil of which is unsuited to hold the grasses of any approved kind, for any great length of time.

They are not natural to grass, and therefore unreliable, and

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cannot be profitably employed in stock farms. The character of the soil is usually of a light texture, sandy or gravelly; they will require to be frequently plowed, and re-seeded with clover, timothy, or other rapidly maturing grasses, and for short periods may yield good crops. But such soils do not seem to contain the elements necessary for the establishment of permanent pastures and meadows, being more suited to the growing of grain and other crops.

These lands stretch away through the Middle, Western and Southern States, leaving comparatively but narrow belts and patches of land adapted to the dairy. So far, experience has shown that the real dairy soils are very limited in extent, and this fact, while it gives assurance that the constantly increasing growth of our country renders certain a constantly increasing home demand for the products of the dairy, and while the nature of the country itself precludes any great or extended competition, should at the same time stimulate those who have been so fortunate as to be in possession of the favored soil, to bring it up to its highest capacity, and make their staple products of the best and choicest quality.

As a top-dressing for grass lands, the application of gypsum, salt, ashes, bone-dust, lime, decomposed urine, well rotted manure applied in fall, composts of manure, river mud, road scrapings, or muck; each and all have a marked influence in promoting the growth of grass.

A more general use of bone-dust, it would seem, should be adopted, in order to return back to the soil the phosphates which are annually taken from it in considerable quantities by milch cows. So large an amount is there taken off in the milk of cows, and for the annual production of their young, that the use of bone-dust on the older dairy farms, it is believed, will soon become a necessity. Wherever employed as a top-dressing for grass lands, its results have been highly beneficial, and its application on dairy farms should be as universal as that of gypsum.

PLOWING AND RE-SEEDING.

From what has been said above, it will be seen that imperative reasons only, should impel the dairyman to disturb good permanent pastures, in the hope of improving them by breaking and re-seeding. Of course where they have failed, or are overrun with weeds, briars, and bushes, resort must be had to plowing

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and re-seeding. It will be well then, to adopt some system that shall be thorough in its operations and lasting in its results. Let no more land be broken up than can be manured, subsoiled, and thoroughly tilled. If the breaking is to be done in spring, manure heavily on the sward, turn under and follow with subsoil plow.

The first crop most profitable for the dairyman will be corn, since the stalks, properly cured, make the best of fodder, and the whole crop can be turned to good account for stock. With the second crop re-seed. It is believed to be poor policy for the dairyman to exhaust his land by keeping it long under the plow, and in the raising of grain before putting down to grass. It is here that great mistakes are made, for the loss sustained by running the land to obtain several successive crops, will in the end prove to be much greater than is commonly supposed. From this cause, often lies the secret of poor meadows and sickly pastures—the soil has been overtasked, and needs rest and nursing until it has gained heart to make ample returns. Two crops of grain, at most, are all that good management would seem to authorize to be taken in succession from the soil, if the land afterward is intended to be employed profitably in grass.

The great object in view will be, to make a permanent pasture or meadow, and thus, by taking a few acres at a time, thoroughly manuring and cultivating it, the work is accomplished in that piece for years. A farm, under this system, may in a few years be brought up to a high state of fertility, and easily maintained and increased in its fruitfulness, without breaking in upon the main business of the dairy.

This course is to be preferred to that of disposing of the stock, plowing up large portions of the farm at once, and then getting back again to grass; for only a few acres at a time can with economy be properly manured, and the work will not generally be performed in that thorough manner as when the attention is directed to a smaller quantity of land, and to a more gradual but surer improvement of the soil. In re-seeding, some attention will be needed to have a greater variety of grasses than is commonly employed for putting down pasture and meadow lands. It has been shown that in rich old natural pastures, from twelve to twenty distinct species are found in the sod, and that the number of plants to the square foot are greater when there are several kinds intermixed.

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Now the favorite grasses used for re-seeding by our farmers, are, for the most part, confined to timothy, the clovers and red top, and it must be evident other species can be added with profit. Of course the character of soil and climate must be studied, in reference to the adaptation of the several species, but a trial of a few varieties costs but little, while the results are likely to be of great value. Mr. Flint, in his excellent work on grasses, recommends, in seeding for permanent pastures, a mixture of the several species in the proportion, as stated in the subjoined table. This table has been re-arranged, and a second column added, in order to show the varieties and the proportions of seed in two tables, as recommended by Lawson & Son, of Edinburgh. "The climate of Scotland," says Mr. Flint, "in some respects does not differ from our own. The latitude of Edinburgh is 55° 57′; that of Boston 42° 21′, while the mean annual temperature of the former is 47° 1′ Fahr., that of the latter 48° 9′, showing a very slight difference. But our summers are hotter, and we are annually liable to the most severe and parching drouths, such as are not often felt in Scotland."

FOR PERMANENT PASTURE.

	1.—Lbs.	2.—Lbs.
Meadow Foxtail	2	2
Orchard grass	6	4
Hard Fescue	2	2
Tall Fescue	2	2
Meadow Fescue	2	2
Italian Rye grass	6	6
Perennial Rye grass	6	8
Timothy	4	3
Red top	2	2
Rough-stalked Meadow grass	3	2
Red clover	2	0
Perennial clover	3	2
White clover	5–45	5
June grass		2
Wood Meadow grass		2
Yellow Oat grass		1–45

The mixture in the second column is more expensive, but is preferred to that of the first, on the probability of its returning a better yield. Mr. Flint favors the idea that with a judicious

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selection and admixture of species, permanent pastures and meadows of great value may be speedily obtained. The suggestion is worthy of consideration, and the foregoing table is introduced here with the hope that a trial may be made of a part or the whole of the varieties named. In laying down pastures and meadows, we have generally followed the usual practice of the country, and therefore have had no experience in sowing a mixture beyond three or four varieties of seed; but it has been long felt that this course was unsatisfactory, at least for pastures, where a variety of species, solid growth and enduring vigor are deemed of the utmost importance.

In closing this branch of the subject, it may not be out of place to briefly allude to orchard grass, and give the opinion of agriculturists, as to its great value as a pasture grass.

In the Transactions for 1850, Mr. Darlington, of Westchester, Pa., thus speaks of it:

"The usual rotation of crops in Chester county, Pa., brings each field, in its turn, into the condition of a *meadow* for the production of hay. The hay crop commonly consists, mainly of red clover and timothy. Those two plants afford a favorite and excellent hay, though the timothy is rather late in flowering. Some farmers prefer the orchard grass (Dactylis glomerata,) to the timothy, for the reason that the orchard grass flowers simultaneously with the clover, and both are ready to be cut the same time. Another recommendation of the orchard grass is, that when cut, the radical leaves speedily grow up, furnishing *aftermath* which protects the soil from the scorching summer sun; whereas the aftermath of the timothy crop is very deficient. Nevertheless, habit or prejudice induces the Chester county farmers, generally, to adhere to the culture of timothy." Judge Buel preferred it to almost every other grass. He says: "The American Cocksfoot, or orchard grass, is one of the most abiding grasses we have. It is probably better adapted than any other grass to sow with clover and other seeds for permanent pasture or for hay, as it is fit to cut with clover and grows remarkably quick when cropped by cattle. Five or six days' growth in summer suffices to give a good bite. Its good properties consist in its early and rapid growth and its resistance of drouth; but all agree that it should be closely cropped. Sheep will pass over every other grass to feed upon it. If suffered to grow long without being cropped, it becomes coarse and harsh. Colonel Powell, (a

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late eminent farmer of Pennsylvania,) after growing it ten years, declares that it produces more pasturage than any other grass he has seen in America. On being fed very close, it has produced good pasture after remaining five days at rest. It is suited to all arable soils. Two bushels of seed are requisite for an acre when sown alone, or half this quantity when sown with clover. The seed is very light, weighing not more than twelve or fourteen pounds to the bushel. It should be cut early for hay."

Mr. Sanders, a well known cattle breeder of Kentucky, says of it: "My observation and experience have induced me to rely mainly on orchard grass and red clover; indeed I now sow no other sort of grass seed. These grasses mixed, make the best hay of all the grasses for this climate (Kentucky); it is nutritious, and well adapted as food for stock. Orchard grass is ready for grazing in the spring ten or twelve days sooner than any other that affords a full bite. When grazed down and the stock turned off, it will be ready for re-grazing in less than half the time required for Kentucky blue grass. It stands a severe drouth better than any other grass, keeping green and growing when other sorts are dried up; in summer it will grow more in a day than blue grass will in a week. Orchard grass is naturally disposed to form and grow in tussocks. The best preventive is a good preparation of the ground, and a sufficiency of seed uniformly sown. The late Judge Peters, of Pennsylvania,—who was at the head of agricultural improvement in that state for many years,—prefered it to all other grasses."

With this evidence of its valuable qualities, it is to be hoped that many will be induced to grow it on stock farms, adding other species also to the limited number now in use, and thereby promoting their own, and the country's wealth.

Where the soil of large fields has become exhausted or worn, and from this cause cannot be made to hold grasses permanently; and when manures cannot be had for their improvement, resort must be had to a succession of clover crops turned under, as perhaps the best means of renovating the soil. When in good heart, they may then be laid down in pasture or meadows, with a reasonable prospect of remaining permanent, and enduring, with proper care annually bestowed as to their treatment. This system of fertilization, is adopted extensively in Western New York, for holding the land good for grain crops, and with the best results.

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Meadows should be made to yield annually at least two tons of hay per acre, and those that are not reaching that point, have some defect in soil, in grasses, or in their management, which should be studied, and receive that attention best adapted to the particular case in hand.

CHANGE OF PASTURES—OVERSTOCKING, ETC.

The practice, which obtains with some, of dividing the pasturage into separate fields, and changing the herd, every week or two from field to field, is now generally disapproved of by our best dairymen.

Cows confined to one field are more quiet and contented—they will usually go over in the course of the day every portion of the field, selecting their food, and when filled they lie down to rest, and *manufacture grass into milk.* All extra labor, excitement, and gluttonous feeding, from an over stimulated appetite, lessens the quantity of milk. Everything about the "every day pasture," is familiar, and if food is abundant they have no thought beyond leisurely taking their meals, and reclining at ease on some favorite spot, ruminating or dozing over their "*knitting work,*" as Mr. Fish aptly terms it—no shadow of discontent clouding their peaceful, and seemingly happy existence.

But let a bite of grass in new fields be had, and all this is changed—they overfeed, and in consequence, their health is more or less deranged, they tramp round in every nook and corner of the field, in search of dainties—become restless or discontented, and not unfrequently some of the more active and enterprising members of the herd, try fences and make excursions into fields of grain and prohibited crops.

We have seen herds with one or two unruly disposed members, though perfectly quiet and orderly, while confined to one pasture, become so restless and discontented, from a change to new fields, as to be exceedingly troublesome, and to cause serious losses.

There are other reasons—the cost of building and maintaining a division fence, is a considerable item. The pastures too, will not be so uniformly cropped; large portions will get a rank growth, be rejected by stock, and therefore afford less nutritious food through the season, than when used as one pasture. Fresh pastures are more apt to produce scours, as is well known, deranging the appetite and health, to a greater extent than when confined to one field. The argument generally used, in favor of two pas-

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tures, is that the daily tramping of the cattle on the one pasture renders the food less fresh and palatable, and that the alternate pastures obviate this, giving time for grass to grow, and thus producing more food and better results. The conclusion arrived at is not true in fact—stock when turned into a new pasture, do not rest until they have roamed over and examined every part of it, and will tramp down, soil and destroy more food than if the same land was in one pasture, thereby really affording or rendering available, a less amount of nutritious food during the season to the herd.

Cattle, it is true, like a change of food; but this change should exist in the varieties of grass, in the same pasture, and not in different fields. Of course the aftermath and gleanings from grain fields, are to be consumed by stock in fall, as deemed expedient, but the summer pasture should be one field, as productive of more milk, with less trouble, expense and loss.

Pastures, it is proper to say in this connection, should not be overstocked—the supply of food, must be abundant, otherwise serious losses will be incurred.

There is nothing gained by stocking clear up to, or a little beyond, the full capacity of the land, and trusting to an extraordinary good growing season to bring the animals through. Much milk will require a proportionate amount of food, and we have yet to see the cow miserly kept on scanty fare, that can turn *that fare* during the season into 600 or 700 pounds of cheese. The rule should be the largest quantity and best quality of dairy products per cow; and not the largest number of cows without thought or care as to the respective quantity or quality of milk from each.

Let this be illustrated a little more fully. The annual average quantity of cheese made by some of our dairymen has reached 700 pounds per cow; the average in the dairy of Mr. A. L. Fish, of this county, as has been given in the reports, was in 1845, 775 pounds per cow. At the latter figures, 30 cows would yield 23,250 pounds of cheese, which at 7 cents, amounts to $1,627.50. Now compare this with a dairy of 60 cows, averaging 400 pounds per cow, and we have 24,000 pounds, which at 7 cents comes to $1,680.00 or only $52.50 to balance against the 30 additional cows. The average of Mr. Fisher's dairy may be said to be an extreme point to reach, but the 400 pounds per cow in the larger dairy, is believed also to be more than the average amount real-

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ised by a very great proportion of dairymen. What has been attained by one, can by good management, be realized by others. Of one thing there can not be much doubt, there is a faulty management somewhere, which demands correction, and it is the duty of every dairyman to study all the causes likely to influence or control the quantity, and quality of his dairy products, and try to reach the highest standard of excellence in all that pertains to his business. Let not the land then be overstocked; make ample provision for supplying food for a certain number of cows, and if the quantity of cheese in the aggregate is to be increased, let the poorer animals of the herd be selected out and sold, and their places filled by better stock, rather than adding to the herd culls and refuse cattle, and scrimping all in their food during a part or the whole of the season.

IRRIGATION.

As a means of improving meadows, or certain parts of dairy farms, that of irrigation, deserves some attention. An illustration of the advantages resulting from irrigation, is presented to the farmers of Herkimer county, in the annual overflow of the Mohawk river. The lands lying along the borders of that stream, in the towns of German Flats, Herkimer, Little Falls, and Manheim, have long been noted for their fertility. They were the earliest cultivated lands in the county, have been severely tasked year after year, have received little manure comparatively, but all manner of bad treatment, and yet retain remarkable fertility.

The character of the soil on these flats, it is true, differs from that of the uplands, being made up largely of alluvial deposits, but deprive them of their annual overflow, and they would today be far inferior to the rich slate lands of the county. Soils adapted to the dairy, abound in numerous streams and springs; and are so located, as to be often made available in irrigating fields, at but very trifling expense. A few furrows turned with a plow, might in many cases, on slopes and hill-sides, be made the means of irrigating large fields, by turning the water on or off at pleasure, at different points, simply by opening places along the furrows with a hoe.

It is not proposed to discuss the subject of irrigation in this paper, but merely allude to this means of fertilization by way of suggestion, in the hope that those who have fields lying in such a manner that the water from springs, streams, or marshy

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lands, can be made available for the purpose, and at no great expense, may at least make a trial of its benefits. Numerous and well authenticated statements might be given, showing great and valuable results obtained by fertilizing fields by artificial irrigation, and thus increasing their productiveness. But the following from C. L. Kiersted, of Kingston, Ulster county, published in the Transactions of 1859, is deemed sufficient:

"I had," says Mr. Kiersted, about four acres of ground, mostly rock, with a soil averaging from six to two inches deep, and many places the rock was bare, lying on a slope, or sloping both ways, with a small stream of water running from a swamp through the lowest part of the lots; the land was in grass, produced about half a ton to the acre, I put upon it manure; it did no good; the grass when wet would grow, but would soon dry up and amount to mostly nothing. I took a team with a strong plow, plowed two furrows in different places so as to take the water from the stream over the highest land and let the water out whenever I desired it; attended to it twice a week, letting off and on in different parts of the lot. The result was about three tons of hay to the acre, cut early and a large after-growth. The next year took the water off, the result was less than half a crop. The year following let the water on again as before, with the same good results.

"I also had a piece of land, a coarse gravel, nothing but Johnswort grew upon it; there was a large spring directly above the lot; though the water running, as is mostly the case from springs, in a channel directly across the lot, I went to work as before stated, and drew the water upon the land; the result was, red top and herds grass came in and grew so that it lodged. Last year I mowed from one acre of ground 8,530 pounds of hay, timothy and white clover, made mostly by irrigation. I took the water from springs of *soft* water; drew it in furrows made with a plow; let the water on the land with a hoe. It should be attended to at least twice a week; the water never should be allowed to become stationary or stagnant. Let the water run in winter as well as summer. The expense of leading the water, when it can be done by furrow is scarcely anything—say two dollars per acre. The water should be taken off whenever the grass is becoming too weak to stand up, and soon after it should be cut."

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WEEDS.

"Eternal vigilance is the price of freedom"—from weeds.

Dairy farming is no exception to the general rule—unceasing strife against the encroachments of weeds. Their march is ever onward, onward, and an unremitting warfare must be waged against them for the possession of the soil. The most troublesome weeds in the dairy districts of Herkimer, are ox-eye daisy, yellow daisy, Canada thistle, quack, wild parsnip, milk weed, burdock, elder, dock, dandelion, and in some parts of the county, sorrel.

There are others, and their name is legion, that infest roadsides, yards and cultivated lands; but the above, particularly the daisies, make inroads upon pastures and meadows, doing immense damage to those crops. Biennial weeds are easily destroyed, by not allowing the plants to go to seed; lime destroys sorrel; dock and parsnip should be pulled up when the ground is soft. Twenty-five years ago, the land here was divided up into smaller farms, with more landholders, and a greater effort was made to subdue weeds. Since then many of the smaller farms have been bought and added to the larger; and as farms increased in size, weeds have become more numerous, until it is not uncommon now to see whole fields in the possession of these pestiferous plants. It would be gratifying to be able to make a better report in this respect, from a region famed far and wide for her dairy products; but the facts will not warrant it. Of course there are a great many farms in the county (perhaps much the larger portion of the land,) that are entirely free, or comparatively so, from daisy. But the pest moves on; it has, perhaps taken possession of the adjoining farm, and then there is a fierce struggle for a few years, pulling up and digging out weeds; but the many myriad seeds,

"Bestride the winged gales,
And sailing upon the bosom of the air,"

drop down in pastures and meadows, in such numbers that the farmer becomes discouraged, or resorts to the scythe to keep them in check.

The following table may, perhaps, be interesting, as showing the vast number of seeds annually produced by a single plant, as well also as what is to be contended with when these pests are suffered to mature their seeds. The botanical and common names are given.

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Botanical name.	Common name.	Number of seed vessels or flowers to each plant.	No. of seeds to each vessel or flower.	No. of seeds to each plant.
Rumex obtusifolius	Common dock	13,000	....	13,000
Arctium lappa	Burdock	613	40	24,520
Chrysanthemum leucanthemum	Ox-eye daisy	45	300	13,500
Matricaria chamomilla	Mayweed	150	300	45,000
Leontodon taraxacum	Dandelion	12	170	2,040
Heracleum sphondylium	Cow parsnip	2,500	2	5,000
Sisymbrium officinale	Common hedge mustard	450	12	5,400
Pastinica sativa	Wild parsnip	600	2	1,200
Sonchus arvensis	Com. sow thistle	100	190	19,000
Sinapis arvensis nigra	Black mustard	200	6	1,200
Stellaria media	Chickweed	50	10	500
Senecio vulgaris	Groundsel	130	50	6,500
Papaver rhoeas	Red poppy	100	500	50,000
Capsella pursa pastoris	Shepherd's purse	150	30	4,500

The Canada thistle is not considered very injurious to meadow lands. Stout grass soon runs them out, but in pastures they are more troublesome. When cut down before the seeds mature and stalks hollow, they are not unfrequently destroyed; the application of salt, too, about the plant and in the hollow stalk of the stubble, helps the work of decay and destruction. But the daisy is more difficult to subdue. Plowing and thorough cultivation for two or three seasons will clear the fields. This, however, is not always convenient or practicable, without breaking up, for the time, the dairy. Manuring heavily and plastering are, perhaps, the best means of getting rid of this pest, where they have got a foothold in patches, and are too numerous to be pulled out by hand. Make the grass grow, put on the manure, ashes, salt, gypsum, and if the grass is thin, sow seed; but above all spread on the manure and plaster; they do not like it, while the grass does, and they are choked out. By this means three objects are attained—improvement of the soil, more grass, and the destruction of one of the most insufferable pests on dairy farms with which we are acquainted.

Many farmers assert that daisies, when cut early, make good fodder; that cattle are fond of it when mingled with hay, and will winter well on such feed. But the plant occupies too much ground, makes little fodder, and is altogether too expensive. Daisy pastures give a bitter taint to the milk, which is perceptible in the cheese, so much so, that some of our most experienced

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cheese buyers affirm they can distinguish the daisy farms of the county from samples of cheese at the depots. Some affirm, and instances are given, where daisies have run out or disappeared from lands, and even roadsides, of their own account, no effort being made to destroy them beyond early cutting—the means usually resorted to for keeping them in check and making the most out of this kind of fodder.

In some of the States, and in Europe, laws are passed making it obligatory on the part of landholders, under penalties more or less severe, to destroy certain noxious weeds. This is believed to be wise legislation: for many a man has a large amount of labor and loss annually entailed on him, by the neglect of neighbors in the destruction of weeds, which, in the first instance, were so inconsiderable, as to have been overcome in a few hours. Weeds are unsightly objects—they mar the good looks of a farm; they are gross feeders, and occupy a considerable portion of the soil, to the exclusion of other crops; they taint the products of the dairy, and a united effort among dairymen should be made to exterminate *those*, at least, *of the worst character*. Might not agricultural societies distribute pamphlets, giving the names and drawings of our worst weeds, and the best means of extermination? Or, premiums might be offered for their successful extirpation, and accompanying statement of the means adopted.

RAISING GRAIN.

Many years ago, it was considered good economy for the farmer to produce on his farm nearly every article needed to supply his wants. More recently, the tendency has been to make one or two articles leading staples in certain localities, as productive of more wealth than the mixed farming of former years.

Some difference of opinion exists, among dairymen, in reference to grain raising, many insisting that all the grain needed should be grown on the farm, in connection with dairy farming. Our best dairymen, however, do not generally advocate the system, beyond what is necessitated from a judicious rotation of crops. Flour, therefore, and much of the grain fed to cattle, are imported from grain growing districts. Meadows and pastures that need breaking up and re-seeding from time to time, will be employed in grain raising; but, to break up a good pasture or meadow, that is yielding well, for the purpose of "plow land," or getting a crop of grain, is believed to be poor policy. Wheat and oats, at

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best, are not the most profitable crops in dairy districts, and can generally be purchased cheaper than can be raised.

Compared with the production of hay, these crops will stand thus:

One acre in hay—two tons, at $10 per ton	$20
Deduct cost of harvesting	3
	$17
One acre in wheat—say 20 bushels, at $1	$20
Deduct seed $2, fitting land, sowing, &c., $5	7
Harvesting and threshing to balance straw.	
	$13
One acre in oats—40 bushels, at 40c.	$16 00
Deduct seed 80c., fitting land, &c., $5	5 80
Harvesting and threshing to balance straw.	
	$10 20

Making balance in favor of hay, and against wheat, of $4; against oats, of $6.80.

These, grain crops are subject, more or less, to accidents, and are more uncertain than grass; hence, the average annual returns would be rather less than above the estimate made.

Corn and barley will compare better, and are more profitable for the dairyman, since the stalks and straw of these grains are valuable for fodder, and the average annual product of grain, will be worth much more than that of the other crops.

It will be well to have some system of rotation, adapted to the soil and farm under cultivation, thus bringing every part of the farm into grass again, at intervals of 10 or 15 years.

If five acres of sod be broken yearly, and five acres be put down to grass, ten acres will be annually under the plow; which, for one hundred acres, would give meadows of ten years' standing. Under such a system, it will be seen, the land could be thoroughly cultivated and enriched, and made to produce large returns in both grain and grass.

ROOTS.

To the dairyman, the importance of growing roots, for stock feeding, cannot be over-estimated.

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In an economical point of view, as a mere substitute in part for hay, roots will hold a high place, being among the best and cheapest of all foods, for the winter and spring feeding of cows. But, beyond this, lies another and by far the greatest advantage to the dairyman: their influence in preserving the health of stock. This point is too frequently overlooked by those who have the care of milch cows.

Perfect health is as essential to the animal, in order to get the best results in the dairy, as perfection in the running gear of machinery, for producing good work. This cannot be too often, nor too strongly, urged upon the attention of dairymen. The cow should be regarded as a delicate piece of "organic mechanism," whose use is to convert food into milk, and everything affecting the health or well-being of the animal, influences, more or less, the quality and quantity of material which she manufactures. A sickly cow can not be expected to be the source of the highest profit.

Whatever the cow eats is sooner seen in her milk than in her flesh, since this is one of the outlets which nature gives her for throwing off disease, and casting out impurities of the system, resulting from bad or decayed food and improper treatment.

The microscopic examination of milk, from animals confined in cities, and whose food consisted largely of distillers' slops and other vegetable garbage, has shown it to be in many instances a reeking mass of putrescence—pus, diseased emanations and milk mingled together, forming a filthy compound, very deleterious to the health of the consumer. The same general principles hold good everywhere. If the cow eats food that is medicinal—that has a disagreeable odor—that in any way affects health, it comes out in her milk. Hence the greatest attention should be given for preserving the health of animals during the winter and spring, in order that they may be prepared to yield the largest quantity and best quality of milk. We hold it to be almost among the impossibilities, for a cow to be kept six or seven months on the imperfect quality of hay ordinarily provided for her use, and without other food, and retain a high state of health. She may be in flesh, but flesh is not always health, and hence the frequent cause of innumerable ailments that break out in spring—"coming in poorly," horn-ail, soak tail, garget, fever, lassitude, and other diseases of stock, well known to dairymen.

A judicious feeding of roots through the winter has a wonder-

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ful efficiency in preserving the health of animals, and no one who hopes to realize an annual average of from 600 to 700 pounds of cheese per cow, from his herd, should neglect to make ample provision of this kind of food. Carrots and mangold wurzel are deemed among the best roots for milch cows; turnips impart a disagreeable flavor to dairy products, but may be fed with profit in winter, when the animals are not in milk. The mangold remains juicy and palatable for a long time; it contains nearly two per cent of flesh-forming ingredients, and upwards of eleven per cent of heat-giving substances, and from experiments made, it appears that the addition of half a bushel of Mangold, morning and evening, to cows pastured and fed with hay, produced an increase of thirty quarts of milk in a week. When the ground is properly prepared, and the plants thoroughly cultivated, a thousand or more bushels of carrots or mangold can be grown to the acre. The carrot is a very sure crop, and on some accounts is perhaps to be preferred for the dairy. As many as 2,000 bushels to the acre of this root have been grown by the application of special manures and extra cultivation. Boussingault estimates the relative nutritive value of hay and carrots to be as one to two and a half, or twenty-five pounds of carrots as equivalent to ten pounds of hay.

Assuming that 1,000 bushels of carrots can be raised on an acre, we have an equivalent for twelve tons of hay. But when the better health of the animal is taken into account, as well as the increased production of milk, and its better quality, it will be seen that the importance of growing this kind of food for the dairy has not been overdrawn.

One word as to the cultivation of carrots: They like a deeply cultivated and well pulverized soil, enriched with rotten or well decomposed manures, and must be kept free from weeds. We have grown good crops with little or no trouble from weeds, by manuring on sod, turning under and deeply subsoiling the land; they are raised this way very cheaply, and in fall, by running a plow along the row at the side of the plants and bending them over, may be rapidly pulled and gathered.

IMPORTANCE OF GOOD STOCK.

Having all the means at hand for producing food in excellence and abundance, the next step will be the selection of a good dairy stock; and it will make no particular difference as to breeds, so

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long as animals of sound constitution and large milking capacity be obtained.

Among the blooded stock, the Ayrshires hold a deservedly high reputation; and next to them, perhaps, the Durhams are more in favor; the Durhams are large, and some families of the breed very excellent milkers, but they have been bred more in reference to beef, than great milking qualities, and hence grade cattle are not unfrequently preferred for the dairy. Instances could be pointed out, in this county, where an effort was made to keep the blood pure, the stock became very inferior for milk, and resort was had to the native cow. Much has been said and written in favor of the superiority of pure blooded animals for the dairy, but it is a question whether they are any better, or even as good as our best native cows. It is said the Cheshire dairies in England average 336 pounds cheese per cow, and from selected cows 560 pounds, and yet we have numerous examples in Herkimer county, where a herd of native cows, sprinkled perhaps here and there with grade cattle, have produced an annual yield of more than 600 pounds per cow.

As an instance of the capacity of some of our native cows, the Oaks cow might be instanced. Hon. Zadock Pratt, in an address before the Greene county agricultural society, thus alludes to this cow. He says: "In the agricultural journals I have read an account of a middle sized country cow (I refer to the celebrated Oaks cow,) bought out of a drove in Massachusetts for a mere trifle. Her history illustrates two things worthy of notice: First, what we can obtain from the best of our old breed; and secondly, how much depends on good feeding." * * "It is stated on the most unquestionable authority, such as satisfied the Massachusetts Agricultural Society, that in the first year, with ordinary keep, she made but 180 pounds of butter. The next year she had twelve bushels of corn meal, and then gave 300 pounds of butter. The next, she had thirty-five bushels, and gave more than 400 pounds. The next year she had a bushel a week, and all her own milk skimmed, and then she gave, from the 5th of April to the 25th of September, the day of the show, 480 pounds, besides suckling her calf for five weeks. She was exhibited, and deservedly took the premium on the last mentioned day, and will carry down her owner's name with credit to posterity as long as *Oaks* grow.

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"In the Transactions of 1849, I find the following record of remarkable cows of this country."

These are cows for the butter dairy. It would be interesting to have statistics showing the capacity of individual cows for producing cheese; but the manufacture of that article precludes experiments of this kind, except at a loss. When the average is made of a herd, it is evident the poorer animals are credited with more, and the best with less, than the amount produced by each.

Date.	Name.	Place.	Weekly produce.	Length of time.
1826	Oaks cow	Danvers	16 pounds.	16 weeks.
1824	Nourse	do	14 do	16 do
1828	Sanderson cow	Waltham	14 do	16 do
1830	Homer's	Bedford	14 do	12 do
1830	Hazeltine	Haverhill	14 do	12 do
1830	Bassett	Northampton	14 do	12 do
1845	Buxton	Danvers	16 do	12 do

"John Hase Powell, of Pennsylvania, from a Short-horn cow, in three days produced 8 lbs. 3 oz. butter.

"George Kerr, Ontario county, N. Y., from native cow, 19 lbs. butter in one week, and 16 lbs. for two succeeding weeks.

"T. Comstock, Oneida county, N. Y., from three-fourths native and one-fourth Durham cow, 17 lbs. 5 oz. butter in one week.

"C. D. Miller, Madison county, made in one week from a cow, 20½ lbs. butter.

"G. A. Mann, Onondaga county, made 67½ lbs. butter from the milk of one cow in 30 days.

"P. H. Schenck, Dutchess county, made 15 lbs. butter per week from a polled cow, and in 21 days 65½ lbs. of butter."

Now it is evident that cows of this character are not to be readily picked up from droves, or from the culls of dairies got together and offered for sale, since no one owning a good cow will willingly sell her at the ordinary market price. If a dairy is to be started, it would be better to pay double the market price for a really good cow than to buy a poor one at any price, and having once established a good herd, to commence breeding in order to supply the places of those worn out by age or failing from other causes.

The selection and possession of the best cows the country affords, should be the ambition and leading object of every dairy-

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man. It is one of the pillars of his success; for, no amount of food, care or treatment, can get the best results from poor and worthless stock.

The practice of buying any and everything that is offered for filling up dairies, cannot be sufficiently deprecated; it is labor, time and money thrown away—worse than wasted—since it exerts no influence for improvement, but induces whole communities to drag, year after year, in toil and drudgery, without much compensation beyond a bare living, and the annual expenses of the farm. It paralyzes, also, all laudable endeavor in other branches of the dairy, because every dollar for improvement is felt to be more than can be afforded, and promising no ample return. Poor stock is the curse of dairy farming, and should no more be suffered to harbor on the farm than any other unmitigated nuisance, whose influence is bad, or destructive to the best interests and well-being of the individual and society at large.

RAISING STOCK.

The great difficulty in obtaining superior milch cows to supply the many and large herds in a dairy district, will render stock raising desirable, at least, with those who are striving to excel in quantity and quality of dairy products. Our best dairymen have long felt, that the only reliable way of getting large returns, and maintaining superiority in this respect, from the herd, is to raise and educate the animal on the farm, and under the eye of the dairyman. Grade cattle, from good milking families of "Short horns," are regarded with favor by many, on account of size. A cross of Durhams and Ayrshires, is also in high esteem, as productive of all the milking qualities of the Ayrshire and an improvement in size from the Durhams.

The Ayrshire blood, it is believed, will prove of great value in American dairies, but whatever stock is in favor, the breeding should have particular reference to milk.

The principle of like producing like, will generally hold good in breeding for the dairy, hence great attention should be had to breed from good milking families, and the parents on both sides should be from stock noted in this respect. Guenon's method of determining the value of an animal for milk, from the escutcheon or "milk mirror," should be studied and understood, and will be of aid in the proper selection of stock for the dairy.

As the production of milk in large quantities is more or less

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exhausting, sound constitution and health are points also to be considered, and an old or feeble cow will not be likely to breed as vigorous stock as younger animals in high health. Mr. Finlay Dun, in a prize essay on the hereditary diseases of cattle, published in the *Journal of the Royal Agricultural Society of England*, enumerates diarrhœa, rheumatism, scrofula, consumption, dysentery, malignant tumors, and the affections depending on a plethoric state of the body, as the most important hereditary diseases of cattle. Among others, he gives the following characters which cattle should possess, in order to perpetuate in their offspring a healthy and vigorous constitution:

"The head small; muzzle firm and tapering; nostrils large and open; the eyes full and lustrous; the ears small, and not too thick; the head well set on the neck; the distance between the ears and the angle of the jaw short, but the width behind the ears considerable (no dairy cow should have a short thick neck); the chest wide and deep; the girth, taken immediately behind the shoulder, should closely correspond with the length from behind the ears to the rise of the tail; the carcass of a barrel-shape, for a thin flat-ribbed animal eats largely, thrives badly, and is usually liable to diarrhœa; there should be little space between the prominence of the hip and the last rib; the quarter large; the measurement from the prominence of the haunch backwards to the rise of the tail, and downwards to the hock, as great as possible; the lower part of the haunch thick and broad; the hide thick and pliant; smallness of bone is a sure indication of early maturity and aptitude for fattening. These, among other characters and qualities enumerated by Mr. Dun, indicate the possession of a vigorous and healthy constitution, and freedom from all inherent disease."

The calf, too, must have generous feed, and good care and treatment, in every respect; for a scrubby, dwarfed and pinched calf cannot be expected to mature into the best cow; care must be taken that it be not over-fed, so as to become dainty, but kept in a healthy growing condition.

Extra feed should be given during the fall, when grass is scant and of poor quality.

Roots, oatenmeal, and the best of early cut hay, fed regularly during winter, with well lighted and well ventilated stables, all will amply repay the breeder, in the better size, condition and prospective value of the animal for the dairy.

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The education of the animal for the dairy, is also of importance. Docility, good temper, quietness, all of which are necessary in a good milch cow, are the result, in a measure, of kind treatment and early education.

Many a fine animal has been irreparably ruined by coarse and brutal treatment, for no cow that trembles from fright, or exhibits great nervousness, during milking, will yield her greatest capacity of milk. Calves, from the first, should be daily fondled, and made familiar with persons; never frightened or worried by dogs, beaten, or cruelly treated. They should have no fear of their attendants, but rather express pleasure in their presence, and a willingness to be petted and handled; and when the heifer comes in milk, the utmost kindness and tenderness should be shown in her management, until the animal is thoroughly broken and shows no more nervousness at being milked, than in the suckling of her own calf. Heifers that have been well kept, will begin to come in milk, at two years' old, and are regarded as making better cows than when coming in milk at a later age; since the capacity of cows for giving milk is varied by habit, and an early development in this respect stimulates the secretions of milk, and, as found by experience, is productive of better results.

MILKING, SALTING, &c.

Regularity in milking, and good milkers, are as necessary to success as good management in any other branch of the business. On this account, none but careful and experienced hands should be employed. The milker, having selected his cows, should study their character, and be careful not to get their ill-will, for an animal that dislikes her milker will not be likely to give down all her milk, and soon begins to deteriorate—her capacity for milk growing less and less. Cows, also, do better that have one steady hand in attendance; and, therefore, the milker should not be continually changing from one set of cows to another. Let it be plainly understood that no harsh language, striking with stools, nor unkind treatment of any kind be had toward stock, and an infringement of this rule is to discharge the offending party on the instant.

It will make a much greater difference than is commonly supposed, to have the animals kindly treated, leisurely driven from the pasture, and thoroughly milked, than where no attention is given to these matters. A careless, poor or slovenly milker will

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soon do great injury to stock under his care. After commencing the work, the udder should be rapidly emptied—breaking off to change pails, to carry milk, or delay of any kind while milking, is injurious, for where a break of this kind occurs the animal will not give down all her milk for that time, and no coaxing will induce her to do so.

Regularity as to hours is also important in milking, and an equal division of time should be made, say at five o'clock morning and evening, and each animal to be milked in regular order—the last cow milked in the morning being the last at night. But, whatever hour be fixed upon should be punctually regarded, since otherwise the secretion of milk in the udder will be irregular.

It will be remembered that the last milk drawn is the best, and that if any of this be left in the udder, there is not only a loss in quality and quantity, but the cow soon degenerates into a second or third rate milker.

Cleanliness should be insisted upon, as milk is easily tainted, and will impart that taint to the products manufactured from it. If the teats be cracked, or the udder feverish, bathing in cold water and oiling the teats, after milking, with whey butter, will soon remove the difficulty.

The following from a writer in the Boston Cultivator, is so much to the point, and states so truthfully what is too often overlooked by dairymen, with regard to milking, that it may not be out of place to quote. He says:

"When I first commenced farming, I milked all my cows with my own hands; and, the result was, no one in town could boast of having made more butter, according to the number of cows, than we. I well remember of having a very noble cow for milk, which would fill a twelve quart pail twice a day; and that a friend while visiting us was anxious to milk her. As I was well aware of the bad results of permitting a poor milker to milk cows that are accustomed to be milked by one faithful, regular hand, I unwillingly consented that he might milk her. The result was, that he obtained about one quarter less milk than she was accustomed to give; and, although I tried faithfully to draw more milk after he had finished milking, my efforts were in vain; and it was several days before I could obtain from her the amount which she was accustomed to give. My manner of milking was to milk as fast as possible until a cow was milked

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entirely clean. I was obliged at one time to stop milking only a few minutes, and I found that the cow had drawn up her milk, and I could not get it that evening. This taught me the importance of employing one steady, regular hand at milking."

Prof. Johnson, also, truly observes that "A state of comparative repose is favorable to the performance of all the important functions in a healthy animal. Any thing which frets, disturbs, torments, or renders it uneasy, lessens the quantity and vitiates the quality of the milk.

"Such is observed to be the case where the cow has been recently deprived of her calf, when she is taken from her companions in the pasture, when her usual place in the cow-house is changed, when she is kept long in the house after spring has arrived, when she is hunted in the field or tormented by insects, or when any other circumstance occurs by which irritation or restlessness is caused, either of a temporary or permanent kind. I do not inquire at present into the physiological nature of the changes which ensue; *to the dairyman it is important chiefly to be familiar with the fact.*"

Salt.—Milch cows should at all times have access to salt. Salt is necessary for the preservation of health, and the want of it for any length of time has a controlling influence in lessening the quantity and affecting the quality of milk. When placed in a trough, where it is easily accessible, the animal takes it in small quantities and as needed, and is not injured from an overdose as is often the case when it is dealt out at stated intervals.

LIGHT AND VENTILATION.

A mistaken notion prevails with many that animals need little or no light while confined in stable. Physiologists declare that, other things being equal, families that occupy apartments in the sunny side of dwellings are the most healthy and happy. Fresh air and sunlight are promotive of health; and yet, in the construction of stables for animals, many seem to forget that these requisites are important.

One would suppose that in localities where the attention of farmers is almost exclusively devoted to stock, everything connected with the management of animals, conducing to their health and comfort, would be the subject of thought. Yet, how few even for a moment are willing to give this subject the attention it deserves. To suppose that an animal, confined in a dark,

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damp, unventilated stable will thrive and be able to yield the same profit that it would if occupying a place the reverse of this, is to suppose an impossibility. Disease, though it may not at first be apparent to the eye, is nevertheless doing its work, and in some way will make itself felt to the loss of the owner. On the score of economy, we believe that it pays to treat all animals kindly, and to provide them with suitable buildings for shelter. We know, from actual experience, that the cow that has been wintered in a warm, dry, well ventilated stable, properly fed and cared for, will pay for all extra trouble and labor in the increased quantity and better quality of milk, yielded through the summer following. When we hear dairymen complaining that the annual yield of cheese per cow has fallen down to 300 or 350 lbs., we have strong suspicions that the fault lies somewhere in the keeping or management of stock.

We hold that a good stable for stock should be provided with windows to admit sunlight; it should be dry and well ventilated, and the same general rules for health, applicable to persons, should be ever before the farmer, and guide him in his treatment of stock.

ABORTIVE COWS.

In my article in last year's Transactions, some facts were given in reference to the comparatively new habit of abortion among herds of milch cows in some of the northern towns of Herkimer.

The opinion has prevailed here to some extent that the causes producing this disease resulted from a lack of phosphates in the soil. As the habit had shown itself only on the older dairy farms of the county, where considerable quantities of this substance must have been extracted from the soil, and carried off in dairy products, and not returned, the reasons adduced seemed to have some foundation. But, on farms where the trouble was severely felt, and where resort was had to turning off the entire herd, and introducing new stock, no cases afterward have as yet occurred. The subject is again alluded to in this paper, because during the present season the habit seems to have shown itself with great virulence, in different localities in the county, to the loss of very considerable portions of herds; and from inquiries, it is believed, the habit is wide-spread and more general than was at first supposed.

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The dairymen of Herkimer are as yet unable to point out the causes for the sudden appearance of this disease in certain localities and on isolated farms, and the only successful means known for arresting the habit is the one alluded to above, viz: disposing of the old herd, and filling their place with an entire new stock from a disaffected locality.

As facts are important in reference to diseases that make their appearance from time to time, the causes of which seem shrouded in mystery, the following from Mr. D. B. Hinman, of Highfield farm, Westchester, Pa., is deemed worthy of note. The facts were presented to the Farmers' Club at this place, in reply to letters of inquiry, with regard to the habit in the locality of Westchester. Mr. Hinman hails from one of the best dairy districts of Pennsylvania, and is favorably known by reputation to many of the farmers of this State. He says:

"A herd of thirty cows, within about one mile of the borough of Westchester, became abortive during the spring. Whilst these cows were taking the bull, a number of persons keeping one cow in the borough sent them to this farm to be served; in every instance the cows aborted. None of them had done so before, and have not since. This was three years ago.

"It is now about four years since this theory was first broached. Every one ridiculed it, but the cases have become so numerous, that most of those who have an opportunity to see its effect, fully believe that when a bull serves a cow that has aborted, and whilst her organs of generation are still much diseased (which is usually the case), he will communicate the disease to a cow that he may serve, within two or three days after he served the abortive cow, and some contend that he will do it within two or three weeks after.

"We have so many instances where cows have been served by bulls running with abortive cows, that very few in this neighborhood will suffer their cows to be served by such bulls.

"The theory is, that the diseased state of the cow affects the bull, somewhat like the venereal complaint in the human species, and he produces in the cows he serves a slow inflammation which results in abortion.

"If you will observe this thing closely, I have no doubt but you will find the same results with you. We do not believe that a bull that has not served a cow for several months can communicate the disease.

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"We have frequent cases where cows have become abortive, and the whole herd, bull and calf, sent off and sold; such cows find their way to Philadelphia, and are sold for what they will bring. The farmer will then make up his number by purchasing such cows as he can find that suit him, within a circuit of a few miles, *when for years no case of abortion will appear*, many of these cows having been in the neighborhood for years, and on dairy farms.

"We do not believe it is from anything they eat, or from anything they drink, or for the want of anything they do not eat.

"The theory of many farmers in this neighborhood is, that the case of abortion is usually produced by accident, by slipping, falling, or being driven by master cows, or something of the kind, and subsequently cases arise from mere *sympathy*.

"When a cow drops a calf (which will sometimes happen among the most careful) in the barn-yard, and at her full time, no notice appears to be taken of her by the other cows—they will mostly withdraw and leave her to herself. But when an abortion takes place, you will generally find it quite different; more or less excitement is manifested, and sometimes very great excitement, even to bellowing and pawing, as if something frightful had happened, and they seem anxious to smell of the dead calf.

"If this theory is new to your dairymen, I think if they will observe closely, they will discover good grounds for adopting it."

In a subsequent letter Mr. Hinman writes:

"I find that the theory of abortion being produced by what the cows eat, or for the lack of something they do not eat, has few if any advocates. Against this theory some reason thus: They say, as a general thing, we have no meadows and pastures, as such—on most farms every field is plowed in its turn, or when its condition seems to require it. Farms are usually divided into ten to twelve fields, and it is a rare case that more than three fields are under the plow at the same time. We have almost uniformly a field of corn, one of oats or barley, and one of wheat. Plowing up a sod, say this spring, and planting with corn, next spring with oats or barley, and next fall it receives in *most cases* the winter manure of the farm, sowed with wheat and timothy and clover in the following spring, and if the field had not received a coat of lime whilst lying in grass, it receives from 50

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to 100 bushels of lime on the inverted sod before the corn is planted. Under this system it is claimed that our farms furnish everything necessary to enable our cattle to produce healthful offspring. We have repeated evidence of the same character as before presented, *so that a bull that has served abortive cows is as much damaged for all practical purposes as the cow that has aborted.*

"I feel quite sure that the more your dairymen examine and watch this theory, the more thoroughly will they be convinced of its truthfulness.

"How long after aborting the cow will cease to disease the bull, we cannot tell; how long after the bull has served an aborting cow will he cease to communicate the disease, we cannot tell.

"With us it is the most rational theory to our minds we have, and until something more satisfactory is presented, is likely to remain so."

DAIRY HOUSE.

The construction of the cheese room, and its proper temperature for curing cheese in the best manner, seems to be but imperfectly understood, even by our best dairymen. Not sufficient thought or attention is given the subject by the generality of farmers, although more or less faulty cheese, on many of our dairy farms, is the result of improper curing in damp, badly ventilated and ill-constructed cheese rooms.

When the weather is favorable, there will be no great difficulty in curing cheese in any ordinary room where it may be kept. But in damp, cool or rainy weather, without artificial heat, or ventilation, fermentation is disturbed, the cheese not unfrequently becomes sour, mouldy, contracts a bad flavor, or is so injured that no after-curing will be able to counteract evils thus acquired and bring it back to first quality cheese. Extreme heat also has an unfavorable influence; then fermentation often goes on too rapidly—the cheese swells, and is rendered porous, or sweats away, and loses a portion of its oily particles.

In the construction of curing rooms, some of the points to be regarded are, that the room be not damp, nor too dry; that the light be so arranged as to exclude the sun shining on the cheese; that currents of air be not allowed to strike the cheese; means of ventilation, whereby gases arising from fermentation be carried away; and finally, control of temperature. A low and even

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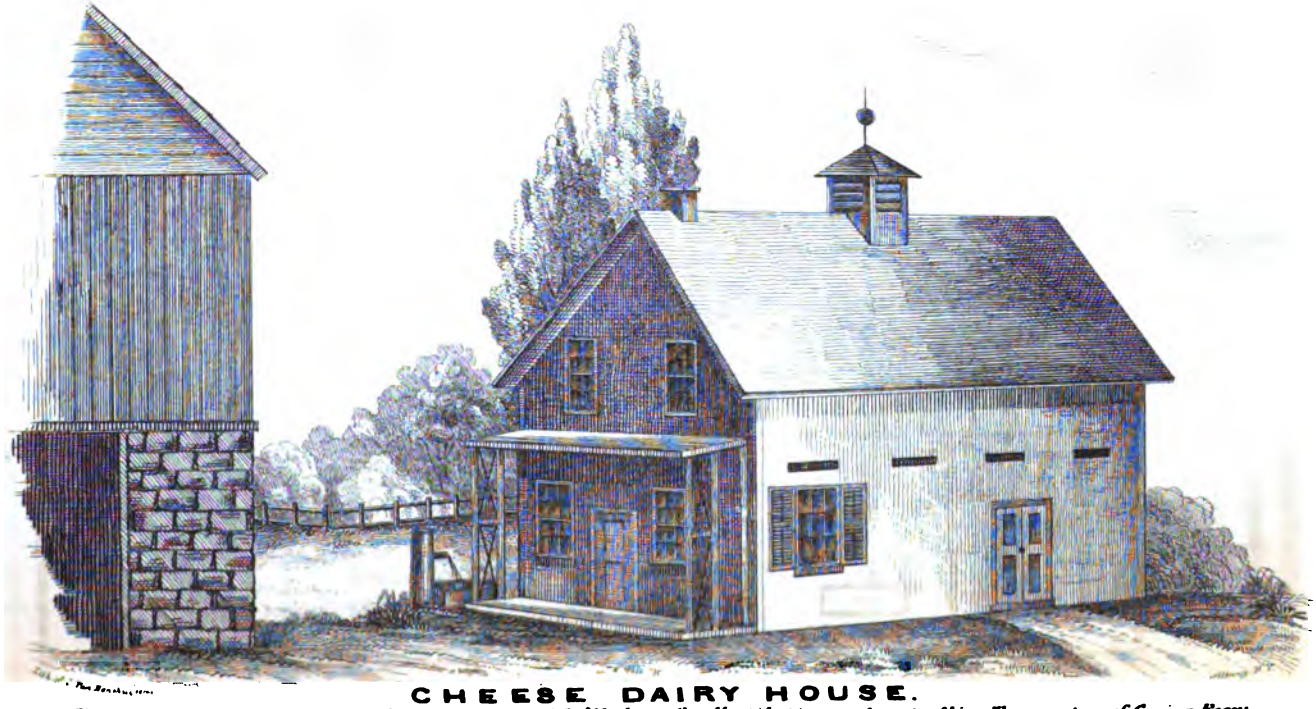

CHEESE DAIRY HOUSE.

Showing the North End. Side, and gable opening, with Wickets for Ventilation and controlling Temperature of Curing Room.

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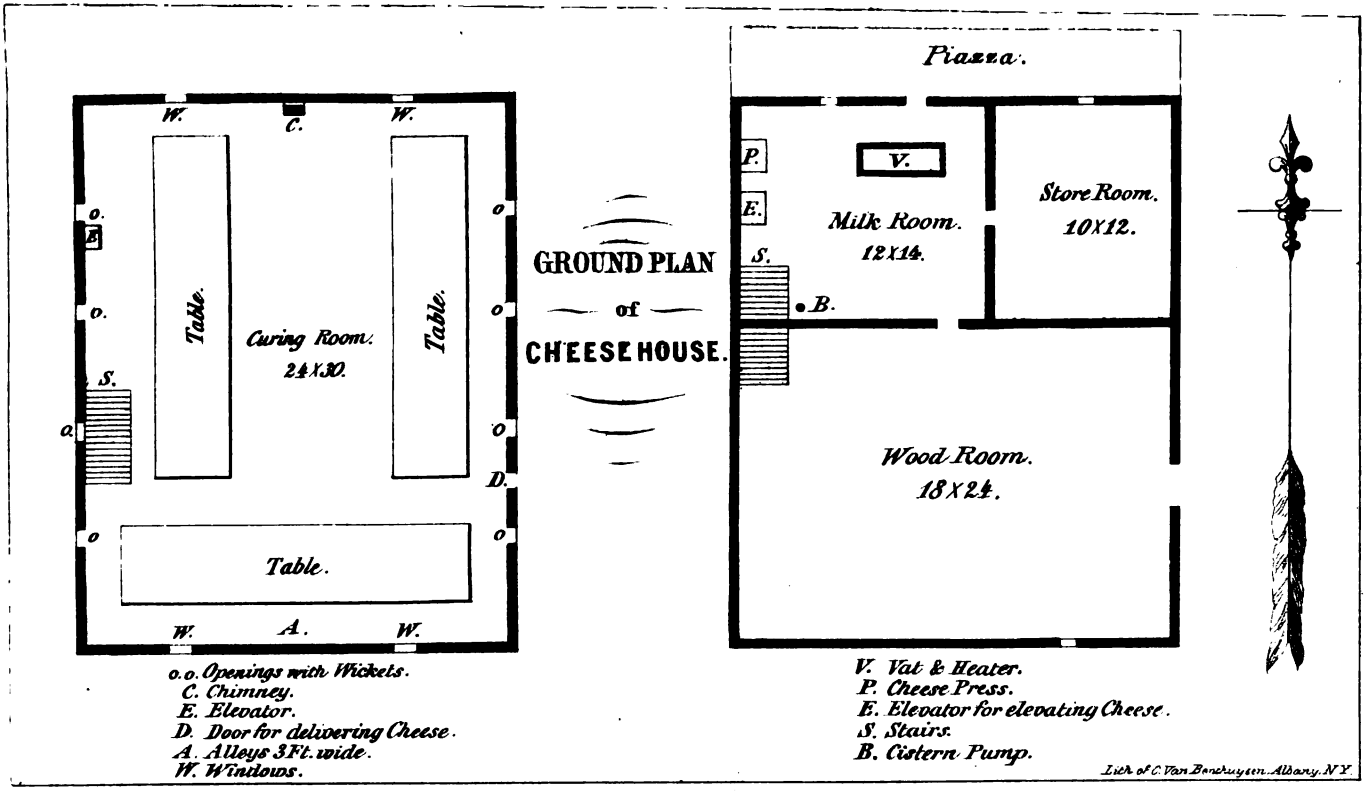

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temperature, ranging from 70° to 80°, is regarded as most favorable for obtaining mild and pleasant flavor.

The precise temperature best, will depend somewhat on the manner of making the cheese, and the quantity of salt and rennet used. Heat, rennet, salt and moisture, will give character to the cheese in curing. From experiments made by Mr. Fish, the following principles are deduced:

"High salting and heat, making hard, smart cheese; low salting and heat, soft, mild and tasteless; low salting and high heat, porous, soft and sharp; much rennet and little salt, cheese huffed, ran oil, became rank, and spoiled; little rennet and high heat, sour, dry, hard and smart."

But whatever be the style of cheese, if uniformity in making is maintained, it will be best cured in an even temperature.

Too much air on the cheese, or the rays of the sun, has a tendency to dry the cheese too fast, to lessen its weight, and make it crack. Too much heat, has a tendency to extract the butter and produce huffing. But when kept in a moderate and even temperature, with ventilation sufficient to carry off the gases arising from fermentation, and are neither so dry nor so damp as to render them mouldy on the outside, and no under fermentation is excited, the best results are obtained.

In the plan for dairy house herewith presented, economy, simplicity and convenience, have been studied, together with advantages, it is believed, for controlling temperature at pleasure. A lower room for curing cheese, if desired, can be arranged on the same principle, and on some accounts is to be preferred, but it would be more expensive, and less convenient in other respects, than an upper room for this purpose, while the advantages gained would not be so great as to make it of much importance:

A building 24 feet by 30 feet, story and a half high, will be large enough for an ordinary-sized dairy. Light is to be admitted only on the north and south sides, as less liable to let rays of the sun fall on cheese. The lower part is divided into room for making cheese, 12 by 14 feet; milk closet or store room, 10 by 14 feet; the balance, wood house, 16 by 24 feet. A piazza runs along the sides of the closet and room for making cheese, rendering these parts cooler in summer, and affording a convenient place for drying dairy utensils, &c. The upper part of building, the cheese-curing room, 24 by 30 feet, 8 feet high, studded and

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lathed and plastered. A ventilator runs from ceiling, in centre of room, above the roof, and terminating in usual form, with arrangement at ceiling for closing draft entirely, or conducting off larger or smaller quantities of air, as desired.

Air is admitted under the roof (where it joins the sides of the building) into the garret, so that by opening slides inside the ventilator, above the ceiling, a current of air may be maintained in the garret part. Openings, with wickets, are placed at the bottom of the room, and along and through the sides of the building, to the open air—three or more on a side. These openings are 10 inches by 20 inches; the wickets close tight or admit more or less air, as desired, at pleasure. An ice reservoir, or refrigerator, on rollers, sets in the room, in which ice may be exposed, if necessary, in extremely hot weather. A good air-tight or coal stove; tables, 4 feet wide, of *hemlock*, and not painted, for holding cheese; thermometer and platform scales. These are the general features of the dairy-house suggested.

The building, it is proper to say, should not stand where taints are likely to be absorbed by milk or cheese. The whole will be better understood by the accompanying cuts.

DAIRY APPARATUS.

An opinion prevails with many, that the operations of cheese making can be conducted as successfully without as with the use of the thermometer, the curd knife, and the vats and heater. That is, that the heat for setting the milk and scalding the curd, can be ascertained, near enough for all practical purposes, by immersing the hand and guessing at the right temperature; that the curd may be broken with a blunt instrument, or with the hands; that a part of the milk may be heated to a high temperature for the purpose of warming the rest, and that a portion of the whey also, may be thus heated for cooking the curd.

We believe that very great losses result to those who persist in this course of dairy management; for no one will be able to judge accurately at all seasons of the year, or under the various circumstances to which the hand is exposed, by heat or cold, immediately preceding the time for testing the milk or whey. Much injury is done to cheese by having the milk too hot at the time of setting or adding the rennet. At about 88° to 90°, is deemed by the best dairymen as the highest heat to which milk should be subjected for this stage of the process of cheese making —a higher heat being almost invariably attended with loss in quan-

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tity as well as in quality of the cheese. So, with the mass at scalding, 100° being the maximum heat for properly cooking the curd.

One part of the great art of making good cheese, and the most from a given quantity of milk, is, that the milk be so managed that the curd shall consist of the greatest amount of the casein, or cheese proper, of the milk, as well as that of the butter.

The observation and experience of our best dairymen, go to show that milk kept at a low temperature, makes the best cheese, whether the milk be new or old. The practice of heating a part of the milk very hot, for the purpose of warming the rest, is neither economical nor convenient. The effect of heating milk, is to hasten the ascent of the butyraceous matter.

When a portion of the milk is heated very hot, there will be a scum formed on the top, and in cooling, the butyraceous matter of the milk rises rapidly, and is near the surface; the caseous parts are below, and the oily globules are not imbedded in the casein, in the same uniform manner as when the milk has not been subjected to high heat.

After the rennet is added, a further cooling of the mass takes place before coagulation is perfected, and the butyraceous matter rises still more towards the surface; and the consequence is, that the upper surface of the milk will be rich in oily matter, which high heat has set free, with too small a quantity of casein, and as rennet acts exclusively on the casein, this butyraceous or oily matter will not readily work in with the curd. Sometimes there will be a thick coat of cream on the curd, and it will be impossible, as every dairyman must have observed, to work this in the curd in the same manner as if it had been imbedded in the caseous particles and coagulated with the rest of the milk in the same uniform manner as when originally suspended. This is one reason why injury and loss are sustained in heating milk to a high temperature; so in heating a part of the whey for cooking the curd, it is unevenly cooked and much more labor is required. There are other reasons which we deem important, but which need not be discussed at this time.

Let it be understood, that we do not take the ground that nothing but poor, miserable cheese must *necessarily* be made from milk, a portion of which has been raised to high heat, and when the breaking, cooking and handling of the curd is managed after the old manner. What has been the result of our experience is,

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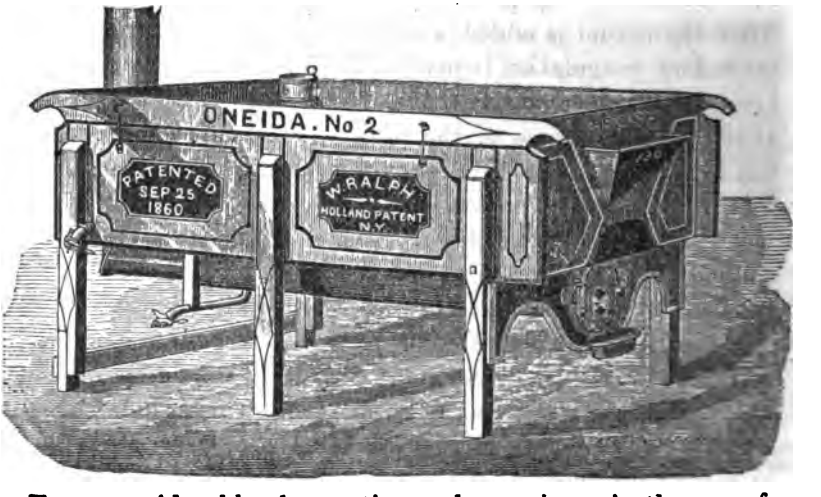
that milk and curd so treated are injured, and will not make so large a quantity nor so good a quality of cheese as when the improved method is adopted.

Vats and heaters, therefore, so constructed that the whole mass of milk can be warmed evenly and alike, and the heat at once controlled, together with a good thermometer, by which the requisite temperature can be ascertained, and a sharp-bladed instrument for cutting the curd, are of the utmost importance in cheese manufacture.

Various apparatus for making cheese have, from time to time, been invented and put to use, nearly all of which are improvements over the tub and its accompanying implements.

Among the pioneers in this department of dairy improvements, was Mr. G. Farmer, of Herkimer, in this county, who first employed the vats and steamer—his invention was in use as early as 1840. After him, Mr. Paine, of this county, had an improved apparatus, at one time quite extensively used in some localities; and almost every year brings out something new in this direction.



From considerable observation and experience in the manufacture of cheese, and the means to be employed for the purpose, it is believed that Ralph's Oneida cheese vat and heater is *the best*, or among the best as yet invented for the purpose intended. It takes but little fuel—heat is distributed evenly and can be controlled. It is the simplest of all the apparatus we have seen, compact, substantial, does the work well, and not liable to get out of repair, and is therefore here recommended. This is one

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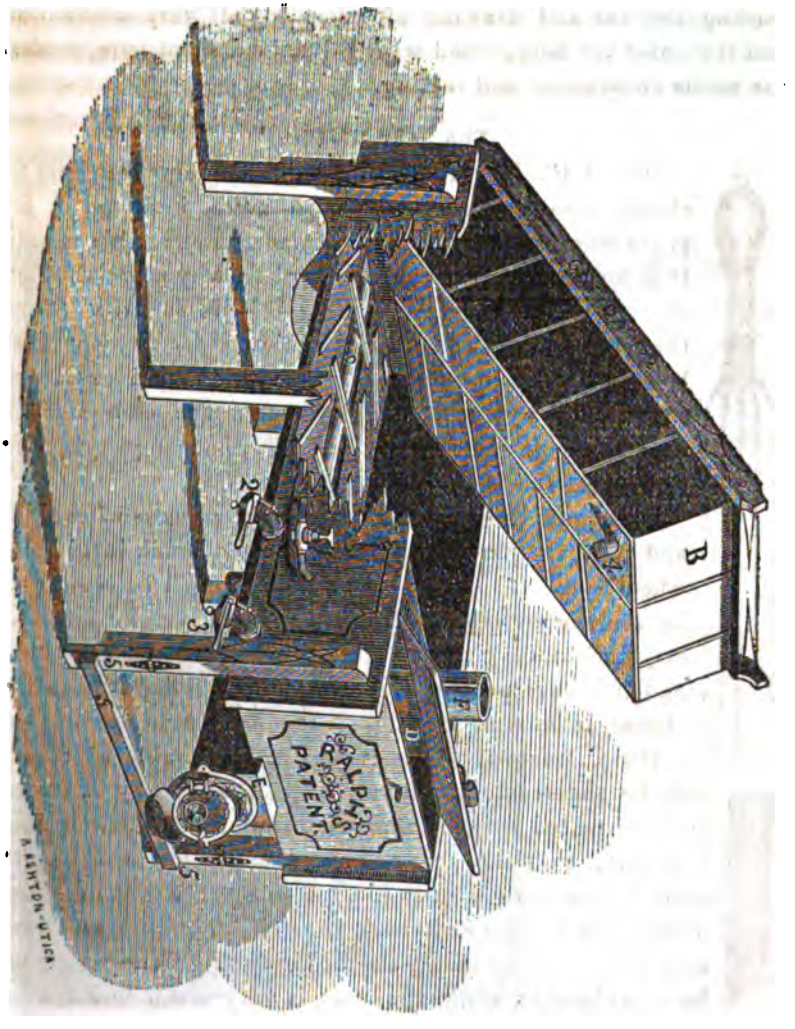
of the recent improvements, but has been thoroughly tested by many of the best dairymen of Herkimer and Oneida, and by them and by us preferred.



As a good cheese apparatus is now regarded by dairymen as of the highest importance, the dairy public, it is believed, will be benefited by an acquaintance with this vat and heater. The preceding cuts will more fully illustrate the apparatus. It will be seen from the cut, that fuel is to be applied at the end, the heater extending the whole length of the apparatus. This gives advantages for working on either side, and the heat being distributed from end to end warms the water between the vats evenly

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and alike. The pipe at the end passes through a water tank where water is heated for cleaning up, and is never so warm as to be uncomfortable; the arrangements for cooling the milk, canting the vat and drawing off whey are all very convenient, and the outer vat being lined with galvanized sheet iron, renders the whole substantial and lasting.

THE CURD KNIFE.

One of the late and really valuable improvements for cheese manufacture is the curd knife, invented a few years since by D. G. Young, of Cedarville, in this county. It is not deemed necessary to explain why a polished and sharply cutting instrument like this, is superior to one that will bruise the curd and press out its oily particles. It is sufficient to say that this cutter is universally recommended by our best dairymen, and no cheese should be manufactured without it. The accompanying cut represents the implement.

This knife is to be used during the process of cooking, and until the particles of curd are not much larger than wheat kernels. Each particle then, it will be seen, must be scalded evenly and alike. Where the particles are large, the outer portions are liable to be cooked too much and the inner parts not enough, which, when run up into cheese, is done so at a loss. The curd being of unequal texture, unequal fermentation, with trouble in curing, will be the result which will affect the quality of cheese. It is estimated by good dairymen that the gain from using this knife, over the old cutter and hands for breaking the curd, is from two to four lbs. for every 100 lbs. of cheese made; but be this as it may, the gain in quality and evenness of cheese, by using the knife during the season, will be considerable, while the work is very much less for the cheese-maker.

PRESSING.

The curd should be properly pressed and the whey expelled, otherwise great losses will be sustained, for if the whey does not soon find its way out, it becomes sour and putrid, and gives bad flavor to the cheese.

Cheese should not be over-pressed—a certain amount of moisture is needed in the cheese to make it mellow, but this moisture

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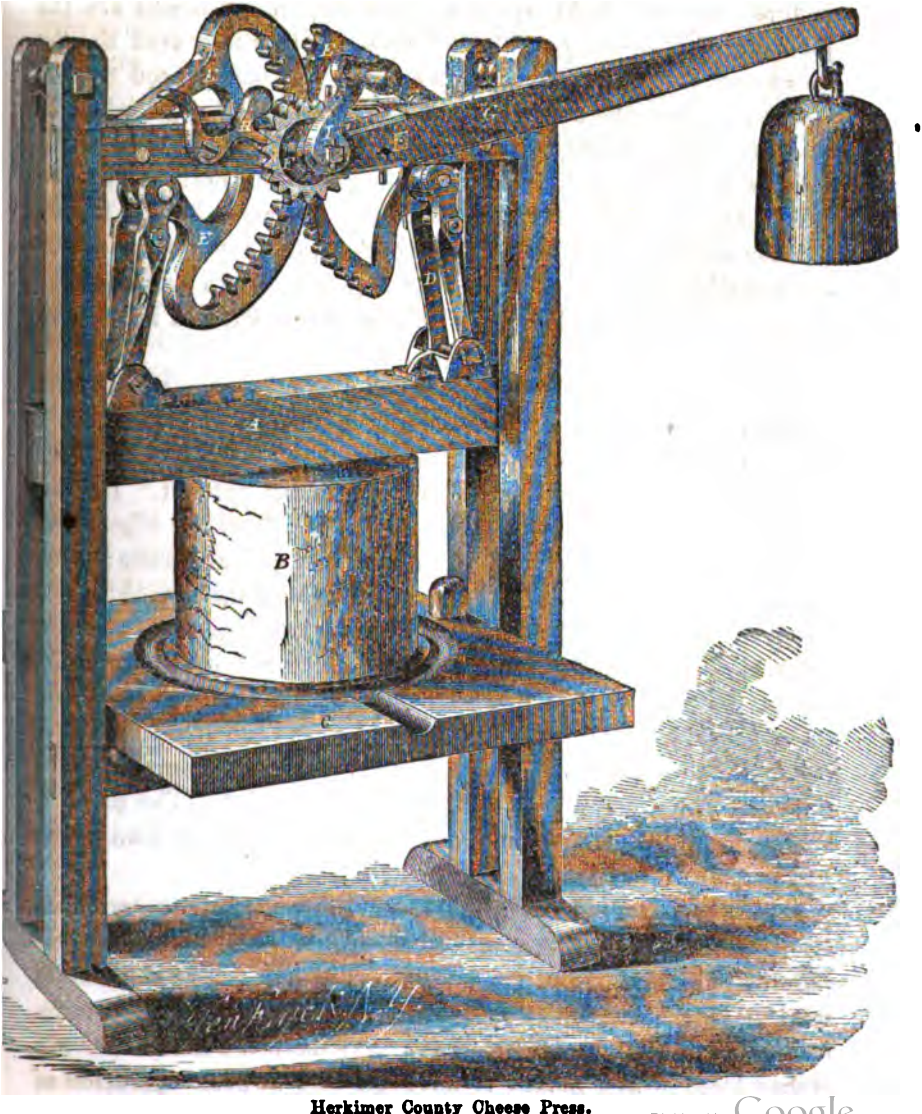
should be evenly distributed throughout the curd, never accumulating in such quantities as to be perceptible to the eye, or so as to run from the cheese after being taken from the press. The rind, top and bottom, should be closed and present a smooth and even surface. At about 80° the curd may be put to press, and in two or three hours after, the cheese should be turned and bandaged and again put in press. Twenty-four hours will be sufficient time for pressing. A good proportioned cheese is about half the height of its diameter.



Herkimer County Cheese Press.

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The press should be strong, handy and faithful in its operations, following up its work as the curd contracts. "The Herkimer County press," recently invented by Chas. Oyston, of Little Falls, is believed to be the latest *improvement* in this branch of dairy implements. It is of such value that the accompanying cut and description are given, that the public may understand its merits.

The principal working parts consist of two sectors and a pinion placed between the two upper beams; their journals are in line; the two light spots seen on the upper beams are the journals of the sectors. One of these sectors is geared on the outer and the other on the inner face; the one geared on the inside laps past the other, so that the point of its cogs, when in line with the journals, coincides with the point of the cogs of the other sector—the pinion consequently gears into both of them at once. On the right side the pinion is concealed by the beams, but the ratchet wheel, which is secured to the pinion shaft on the outside of the beam, shows its position. In front of the ratchet is the lever, playing loosely on the shaft, and in front of the lever is the crank, secured by a pin.

On the left of the ratchet is a dog, which takes into the ratchet at either end, as required; there is also a dog screwed on a strong pivot on the backside of the lever with a hook on the top, while its lower end is shaped to work in the ratchet. Besides the already described journal in the sectors, there are others, one in each sector; the length of these journals is four inches; they, as well as the others, are wrought iron, turned up smoothly, and cast in the sector perfectly solid, by a new and ingenious process. From the last described journals depend four iron bars or pitmen, the bottom ends of which are circular, working in corresponding circular recesses in iron boxes fastened to the top of the follower, one pair at each end of the follower; they are secured to the boxes by bolts, making an ordinary knuckle joint. The press is simple, compact, strong and durable, the weight of iron being 116 pounds.

It will be observed that the follower receives its pressure from the sectors at four different points, which gives it a perfectly parallel or true motion up and down. The journals of the sectors work in iron boxes, which makes them very durable. The pinion makes $3\frac{1}{8}$ revolutions at each operation; the lever is four feet six inches long, which makes it have 88 feet at each operation of

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pressing, if required. One pound at the end of the lever gives an average pressure of 258 lbs., but as the power is progressive, it is less to begin with and much greater near the end of the operation.

The board on which the cheese rests is 22 inches from the floor, which is the right height for manipulating a cheese comfortably.

The follower is 17 inches above this, which gives a clear space of 31 by 17 inches for the cheese.

NEW METHOD OF SALTING CHEESE.

In salting cheese, the general practice among dairymen is to drain the curd of whey, and then apply salt in the proportion of one pound of salt (a pure article) to from forty to fifty pounds of cheese, according to the time cheese is designed to be marketed.

The question has occurred with many, whether the salt could not be more easily incorporated by salting the milk, or applying it after coagulation and when the curd is sufficiently cooked. From experiments made in salting the milk, it seems the cheese manufactured was of good quality, but the proportion of salt required was at the rate of 3¼ ozs. to the gallon of milk, or 8 lbs. 2 oz. salt to 40 gallons, or about 40 lbs. cheese. The objection to salting in the milk is, that the whey is unfit for pigs and the large quantity of salt required. Mr. D'Angiles, of Oneida county, has recently advocated the plan of salting in the whey. His method is briefly as follows: When the curd is about sufficiently cooked, most of the whey is drawn off, leaving just sufficient to hold the mass in a loose and finely divided state, the salt is then applied and stirred through the mass. The advantages claimed are, that much hard labor is saved; that the salt is more evenly distributed through the curd, which is not bruised and the oily particles pressed out by rough handling. This method is being adopted by some, the proportion of salt used being graduated according to the amount of whey in the curd at time of salting and the character of cheese to be manufactured.

COLORING CHEESE, ETC.

One of the means employed to give cheese a *rich cream color*, is to expose the curd before and after salting to the air, instead of hurrying it into the hoop or press, as is usual with the majority of dairymen. Every cheese-maker must have observed the fine golden color acquired by particles of curd that have accidently remained out of the hoop and exposed during the day

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to the atmosphere. This is the precise color desired by the dealers, and in warm weather an exposure long enough for the desired color is practicable, and the appearance of the curd can be materially changed for the better, by letting it remain in the vat or tub until it has acquired the proper temperature for the press.

It is always preferable to cool curd in this way, instead of using water or cold whey on the curd, as is sometimes done for this purpose, as these last have a tendency to impoverish the cheese, by washing out a portion of its richness, besides injuring somewhat its flavor.

Fine flavor, quality, and the proper texture in cheese are important requisites to ready sales and good prices, but all these may be present, and yet the cheese sell low in market from its bad appearance. The *eye* must be suited as well as the *taste*, and it is difficult to make the consumer believe that pale, white cheese is as rich as that which has a fine cream color.

Again, many dairymen are troubled more or less in preserving a smooth, elastic rind; the rind checks and deep cracks are found here and there in the cheese. This results often, and for the most part, from the air being allowed to blow on the young cheese; cheese when it comes from the press, and for several days after, or until the rind has a firm consistency, should be kept where the air may not blow directly upon it; and washing the cheese twice a week with hot sweet whey, will add much to its outward appearance. Annatto is in general use during spring and fall, for coloring milk for cheese making, but as much of it is adulterated with poisonous materials, its use should be avoided in summer, when the desired color to the cheese can be obtained as above described.

VARNISHING CHEESE.

When cheese is ready for market and about to be shipped, it is the practice with some dairymen to apply to each cheese a thin coating of varnish made from gum shellac.

The shellac is simply dissolved and applied with a brush. This coating gives the cheese a smooth glossy appearance, and, besides adding to its beauty, is said to keep the cheese from loosing weight or gathering mould. When cheese well cured are to be shipped to a foreign market, or are to remain in store several weeks or months, it is claimed the above treatment is

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particularly beneficial, as serving to keep them in better condition with less loss, and, at the same time, adding so much to their appearance, as to induce readier sales than when not so treated. We have never made trial of gum shellac for this purpose in our own dairy, and, therefore, cannot speak positively of its merits; but have been assured by good dairymen that its application has been practiced with decided advantage. It is stated that the cheeses of Holland are usually covered with a coating of linseed-oil varnish, and is one of the principal causes of their preservation on long voyages, to keep them from losing weight; but anything that would be likely to impart flavor or taint to cheese would be very objectionable. This point should be ascertained with regard to the above compounds before venturing upon their use for the purpose above mentioned.

CHEESE MANUFACTORIES.

The opinion prevails with some that dairying can be carried on with more profit and ease by the establishment of cheese manufactories in neighborhoods, and where the milk from the several farms is daily delivered, measured and accounted for in cheese. Thus relieving the farmer from a considerable outlay of capital, care and confinement, while the manufactory, supplied with every convenience, and operated by responsible persons highly skilled in the art, is enabled to produce from the milk the largest quantity and best quality of cheese; its uniformity and large quantity together, commanding for it in market an advanced price over single dairies. Where cheese establishments of this character have been put in operation, they have in general given satisfaction to parties interested—the advanced price obtained for the cheese having in some instances covered the whole cost of manufacturing. These establishments are generally conducted on the principle of stock companies. Thus, a certain number of dairymen agree to deliver at the factory the milk from their herds at stated hours each day. An account is opened by the manufacturer with each person, the milk is measured as brought in, and the cheese numbered and weighed, and each person credited with his proportion of cheese. All this is conducted with so much system that, by referring to the books, the shrinkage or loss on any one cheese made during the season can at once be ascertained. The manufacturer is paid a stated price per hundred pounds for the making, care, &c., of cheese. With

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regard to sales, or any matter requiring action on the part of the association, the number of votes of each person is in proportion to the number of cows from which he delivers milk. Hogs for consuming whey are furnished by each, also, in proportion to cows. Sometimes a person is employed by the season to gather up all the milk night and morning and deliver it at the establishment; the milk cans are placed by the farmer on a platform the height of the wagon, at some convenient spot near the buildings, the team comes along, gathers them in, delivers the milk, and on return, brings back each man his empty cans.

A brief allusion has been made to this plan of cheese manufacture, because it is comparatively new, and because it may possibly prove suggestive, not only to persons engaged in dairying, but as offering a feasible plan, perhaps the best, for those unacquainted with the art in districts where it is proposed to introduce dairy farming. The outlay for dairy apparatus and suitable buildings on each farm for conducting the business is considerable, and when it is taken into account how difficult it is to obtain first class dairy-maids, the care and confinement of a dairy, together with the losses that are annually sustained from carelessness, inattention, or want of knowledge on the subject in all its details, there is reason to believe the plan in time will be widely adopted.

CONCLUSION.

Dairy farming, to be conducted successfully in all its branches, requires study, order, system and experience; and, when well conducted, offers ample remuneration.

Nature herself seems to have stepped forward to protect the interests of the dairy, since only a comparatively small portion of the country is adapted to the business. It is more sure in its results than many other kinds of farming, because grass, its staple crop, is less liable to be unfavorably influenced by weather, less subject to the attacks of insects and blights, prejudicial to other plants. The fluctuation in prices, too, for dairy products is less than with other staples, where the field of competition is wider, the market value of the former seldom, if ever, falling so low, but that a fair remuneration is rendered the farmer for his toil and the capital invested. These products, too, in universal use throughout the civilized world, healthy and nutritious, are regarded not only as a *necessary* article of food, but also as a

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luxury, hence they are of ready sale, and a large demand for them must always continue.

To the American dairyman the prospects of permanency in his business and ample remuneration are of an encouraging character, because he has established a footing in Europe which, by judicious management as to manufacturing and exporting the best quality of dairy products, can be made available in disposing of any amount of these staples.

This outlet is the more encouraging since the European, under high rents and taxation, is unable to compete with us in this branch of farming, and must ultimately turn his attention into other channels of agriculture. And while the home market can thus be kept clear, prices must of necessity rule high.

The Journal of Commerce, under date of January 4, 1862, publishes an important table of exports, from which it appears the exportation of products of the dairy to Europe, during the last three years, has increased each year in a ratio beyond the expectations of the most sanguine. The following table is given, showing the—

Exportation of Butter, Cheese and Lard from New York to Europe, for three years.

	lbs. butter.	lbs. cheese.	lbs. lard.
1859	2,494,000	9,287,000	11,015,000
1860	10,987,000	23,252,000	18,860,000
1861	23,159,000	40,041,000	47,290,000

Such an increase in the exportation of dairy products as that of last year is without a parallel, and, as greater efforts shall be made to manufacture only a choice article, England must in time look to this country for her main supply. These facts should stimulate those engaged in the business to renewed efforts of improvement in all that pertains to dairy management—to husband the soil, and bring it up to its best capacity in the production of such food as will make the best milk, to improve the milking qualities of stock, and the manufacture of butter and cheese, ever looking forward to better quality and increased quantity, so that the prosperity of the individual and the wealth of the nation be advanced.

Dairying, it is believed, offers great inducements for a judicious outlay of capital. It rests on no mere speculative basis—"up to-day, and down to-morrow," but is permanent in its character and prospects, and sure in its rewards.

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It opens up a wide field for improvement—in the exercise of judgment, skill, taste and scientific research, chemistry, botany, geology, architecture, stock-breeding, agriculture, all are made to subserve the general business.

As a source of national wealth, dairying to-day falls behind no other interest in proportion to capital invested, and we hope yet to see all its resources developed, and understood, and the business so systematized that it shall rank *best* among the professions in the land.

BUTTER AND CHEESE IN STATE OF NEW YORK, AS PER UNITED STATES CENSUS, 1860.

Northern District.

	Butter.	Cheese.
Albany	1,318,323	72,005
Allegany	1,665,621	939,115
Broome	1,693,444	53,719
Cattaraugus	2,324,507	1,857,349
Cayuga	2,084,459	195,505
Chautauqua	4,479,697	1,153,257
Chemung	865,796	11,090
Chenango	5,046,772	1,446,538
Clinton	894,609	87,780
Cortland	3,375,372	828,055
Delaware	4,966,118	44,777
Erie	2,128,107	2,278,276
Essex	634,289	106,119
Fulton	717,095	665,684
Franklin	1,497,162	138,776
Genesee	959,465	119,502
Hamilton	80,324	7,170
Herkimer	1.251,872	10,901,522
Jefferson	4,890,980	4,773,109
Lewis	1,998,887	2,911,775
Livingston	1,151,877	235,195
Monroe	1,651,914	171,960
Madison	2,135,617	2,589,992
Montgomery	1,200,528	2,611,448
Niagara	1,257,891	107,916
Onondaga	2,363,284	1,127,283
Oneida	4,140,442	3,519,732
Ontario	1,188,103	217,934
Orleans	854,054	143,280

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	Butter.	Cheese.
Oswego	2,171,833	1,108,456
Otsego	3,286,617	2,161,929
Rensselaer	1,279,844	626,683
Saratoga	1,500,607	169,489
Steuben	1,983,077	231,233
Schenectady	628,980	84,261
Schoharie	2,203,667	112,671
Schuyler	705,094	48,886
Seneca	663,107	15,284
St. Lawrence	7,193,597	2,353,887
Tioga	1,317,907	47,837
Tompkins	1,631,982	55,452
Warren	642,829	87,623
Washington	1,696,472	768,320
Wayne	988,430	144,640
Wyoming	1,500,824	981,946
Yates	808,630	77,496
	89,020,106	48,392,006

Southern District.

	Butter.	Cheese.
Columbia	1,401,954	71,330
Dutchess	2,134,209	40,553
Greene	1,294,099	21,300
Kings	124,158	------
Orange	3,033,805	------
Putnam	465,235	5,644
Queens	505,985	1,422
Richmond	7,257	------
Rockland	244,932	51
Suffolk	749,130	3,990
Sullivan	966,793	10,552
Ulster	1,834,078	100
Westchester	1,315,528	1,340
	14,077,173	156,282
Northern district	89,020,106	48,392,006
	103,097,279	48,543,288

Milk sold (northern dist.) 53,400 gals.; value..... $11,348 00
Milk sold (southern dist.) 3,090,177 gals.; value.... 74,371 00

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SURVEY OF STEUBEN COUNTY.

The county of Steuben is one of the largest counties in the State, and is peculiarly a farming county. Its history from its first settlement, in 1789, to the present time, is most fully given, and its progress has been of the most gratifying character. The survey is divided into six divisions: *Geology of the county; Original state of the county and settlement; Source of land title, Climate; Statistics; Fruits.* These are very ably treated, and the survey will be found of very great interest. The divisions on Climate and Statistics are very valuable—and we are glad to learn that Mr. Denniston is preparing a continuation of the statistics of the county—thus adding another county, in which we shall be furnished with its annual progress. We trust the time will soon come when every county in the State will yearly furnish a statement of its progress in agriculture and the mechanic arts. J.

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SURVEY OF THE COUNTY OF STEUBEN.

By Goldsmith Denniston.

The county of Steuben lies between forty-two degrees, an forty-two degrees and thirty-six minutes of north latitude, an between three minutes and fifty-two minutes west longitude fro Washington. It contains 835,000 acres of land, the assesse valuation of which, for 1860, was $12,477,149. Personal propert was assessed at $2,325,465, making an aggregate of $14,802,61 Total taxes for the year $114,216.17.

PART I.—Geology.

To become acquainted with the geological features of a distri of country it is necessary to discriminate between them, and th developments of other districts; although particular series o rocks may agree in their character, yet the order of their supe position may differ.

Geologists have observed a class of rocks, hard, of close te ture, arranged in beds; when in thick masses, of a crystalli structure, which are termed primitive, because they are nev mixed with rocks of any other character. Then, again, oth rocks containing fragments of the primitive strata, showing the to have been made up partly of the primitive strata and part of substances formed posterior. These were termed secondar Above these was observed another group of strata which co tained shells and corals, bodies which have never been seen in t two lower strata, showing that it must have been formed sub quently to the pebbles or shells it contains, and that previous its formation there had existed rock to supply the imbedd fragments. In ascending towards the surface it was observ that the strata lay one above the other, many composed of pr existing rocks, as pebbles or sand cemented together, and th there was an increase in number and variety of the imbedd shells, and that the remains of plants and animals began to appe

The *secondary rocks* comprehend all the different beds from t primary strata. In England they lay in the following ord beginning with the primitive, then the grauwacke group, the o red sandstone group, the mountain limestone group, the co group, the red marl group, the oolite group, the chalk group.

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the red marl group, the oolite group, the chalk group.

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These groups are distinguished from each other by the organic, or inorganic remains they contain, corals, zoophytes, crustacea, remains of fish, and marine shells, plants and animals. It is noticed that in all the strata abounding in *animal* remains, the composition is limestone or clay, or both associated together.

The *tertiary strata* date immediately after the chalk, and consist of a very extensive series of deposits, showing by their position, and the organic remains they contain, that some of them were formed at much earlier periods than others, that there is a regular approach to the present state of animal creation, and contain fossils identical with species now living.

On our continent no tertiary rocks are found, but they are represented by beds of clay, sand, and gravel, which from the fossils contained within them, indicate them to have been cotemporaneous.

In the State of New York the secondary formation is wanting, as well as the upper strata of the transition system. Nothing is found above the beds of the old red sandstone, but drifted sand and gravel of a late tertiary epoch. All the formations found in the State of New York, except the alluvial and diluvial deposits, and the sand and gravel of a late tertiary epoch, are below the coal measures; the highest member of the transition system, in New York, the Catskill group, being immediately beneath it. The systems, groups, and formations of New York, are as follow:

1. Alluvial.		
2. Diluvial.	Diluvial sand, boulders, clay.	
3. Old red sandstone	Catskill group.	Conglomerate, old red sandstone.
4. New York transition system.	Erie group.	Chemung sandstones & flag stones, Ludlow shales.
	Helderberg series.	Helderberg limestone, Schoharie grit, brown argillaceous sandstone, encrinal limestone, Oriskany sandstone, green shaly limestone, pentamerous limestone.
	Ontario group.	Onondaga salt and gypseous rocks, limestone and green shales, argillaceous iron ore, Medina sandstone, soft, green and variegated.
	Champlain group.	Gray sandstone and conglomerate, Lorraine shales and roofing slate, Utica slate, Trenton limestone, birdseye limestone, Chazy limestone, calciferous sand rock, Potsdam sandstone.
5. Taghkanic or Taconic system.	.....	Light green shales, gray and clouded limestone, brown sandstone.
6. Gneiss or primary system.	.....	Gneiss, hornblende, mica slate, talcose slate and steatite.
7. Superincumbent rocks.	.....	Greenstone, trap and porphyry.
8. Unstratified rocks	.....	Granite, hypersthene rock, primary limestone, serpentine, magnetic iron ore.

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In the above table it is seen that the Erie group lies immediately below the old red sandstone system, and is divided into two parts—the Chemung sandstones and flag stones, and the Ludlow shales. The Ludlow shales are below the Chemung sandstones and flags, and are composed of soft slaty rocks, alternating with thin beds of limestone, and are easily decomposed. The Chemung group consists of thin beds of gray sandstone, with intervening shales and slate. It is upon the elevated surface of these sandstones that is found a peculiarity of soil adapted to the culture of the cereals and the grasses—a change also of timber from oak, maple and beech, to pine and hemlock of large growth. As the surface rock of the county of Steuben is composed of the Chemung group of sandstones and shales, to the depth of nearly 1,000 feet, we may look for a soil and vegetation, within its limits, peculiar to that particular group.

The sandstones are most commonly fine grained, the particles being often cemented by shale, the two being intermixed with each other. It is to this cause, from the disintegrating nature of the shale, that so much of the sandstone of Steuben county is of a perishable nature. The sandstones range, in layers, from an inch to a foot in thickness. In some localities they form suitable layers for flagging; in one locality a quarry suitable for grind stones. The shale in some places assumes a slaty structure, sometimes of a blue color, with the same tendency to decomposition which characterizes the whole mass. In some places they form concretions parallel with their layers, of carbonate of lime, or of manganese, of sizes from an inch to several yards in length. They are sometimes colored with bitumen and carbonate of iron.

The rocks of Steuben county pass immediately under the coal formations of Pennsylvania. The dip, or inclination, is constantly to the south, there being no *anti-clinal* line other than the slightly elevated one which has given rise to the northern and southern waters. This dipping of the rocks to the south, though it diminishes the geographical height of the coal series, correspondingly increases their thickness. Some of the hills, in the south part of Steuben county, are capped with conglomerate, showing masses of red sandstone, together with fossils that border the coal series; but, the strata of rocks dipping to the south at the Painted Post, 130 feet to the mile; at the Chimney Narrows, 100 feet; and five miles further south, 198 feet; the strata of

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rock peculiar to Steuben county, would pass six thousand feet below the coal beds of Pennsylvania.

The rocks of Steuben county, consisting of shale and sandstone, of a greenish color, are evidently not of igneous origin. They abound in marine organic remains of shells and zoophytes, showing the presence of the sea, and not of land favorable for plants, the origin of coal—the coal series exhibiting vegetable and not marine remains. The conglomerate, or pebble rock, occurs, in this county, only as a terminal rock, and in very partial masses. It diminishes with the coal as you go north. From all of which, it is evident, that these rocks pass under the coal series, and form the support of their mass.

The rocks of the county exhibiting marine organic remains, were at some period submerged by the waters of the ocean. It has been suggested that an inland sea covered all the western portion of the State, and observations may tend to support it. The lake ridge of Ontario shows marks of shores of water, that at various periods stood from an elevation of seven hundred and sixty-two feet to the present level of the lake. Similar traces of ancient shores may be traced at the head of the Seneca lake. When the waters stood at the highest marks indicated, the area of the inland sea must have been limited by the Highlands and New England range on the east, the shores of Lake Superior on the north, the Alleghanies on the south, and the head waters of the Mississippi on the west. The outlet of this sea would be by the St. Lawrence, the Hudson, the Connecticut, and the Susquehanna.

The deposition of drift, which occurred at that time, may be traced down the valleys of these rivers in the large number of boulders deposited.

The indications of diluvial action are everywhere perceived in the accumulation of gravel, sand, pebbles, and boulders strewed over the surface. Diluvial hills are found in various locations. The level portions of Western New York are of diluvial origin, the surface strewed with boulders of foreign origin. Many of them consist of granite and gneiss, some of sandstones from below, others of limestone from above. Many of the rocks bear evidence of the wearing action of water, running and carrying materials which wore away, and, in some instances, polished the surface of the rock. In some places the abrupt offsets, from one strata to another, have been worn down to a gradual slope.

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The agency of running water, in producing our diluvial deposits, is very obvious. And the formation of those deposits show not only the action of running water in one direction, but also of eddies and counter currents. In many places we find the coarser deposits on the south side of the hills, and their ascent more abrupt. We find, also, granite boulders in the same deposit with those of limestone, many of them worn and rounded as by the whirl of counter currents. And many of our hills and valleys bear evidence of such eddies and currents of water in their formation.

We notice two kinds of materials that have been carried and deposited by the agency of currents of water:

1. Boulders, or large blocks of stone, rounded, and scattered over the surface or imbedded in clay.

2. Beds of sand, clay, and gravel, composed of rounded fragments of different sizes.

The boulder deposits are numerous, and scattered generally throughout the county. In Prattsburgh, Pulteney, and Cohocton, they are chiefly derived from primary rocks, some of the crystalline formation, others of granite, gneiss and feld-spar combined. On the farm of Albert Seeley, in the town of Pulteney is a large boulder of this description, the parent bed of which cannot be nearer than the primitive formations of the north.

Granite is found scattered through almost all of the northern towns of the county, and in the southern it is mingled with masses of conglomerate. In some instances, as in Urbana, Wayne, Wheeler, and Bath, large blocks are accompanied by rolled pebbles of green stone, sandstone, sienite and limestone. In the valleys of the Conhocton, Canisteo, Five and Twelve Mile Creeks, limestone is found as a drift rock in rounded pebbles of different sizes.

There is not any uniformity in the line of deposit of these boulders, nor can any course be traced with distinctness. It is uncertain whether they were grounded from ice deposits or by glacial action.

The ridges of gravel, and sand, and clay, appear to have been formed by similar action of water; they seem to be of similar character, and from the same localities as the larger boulders. There is scarcely any uniformity of drift over a given space in any one town; in some places it assumes the form of fine sand,

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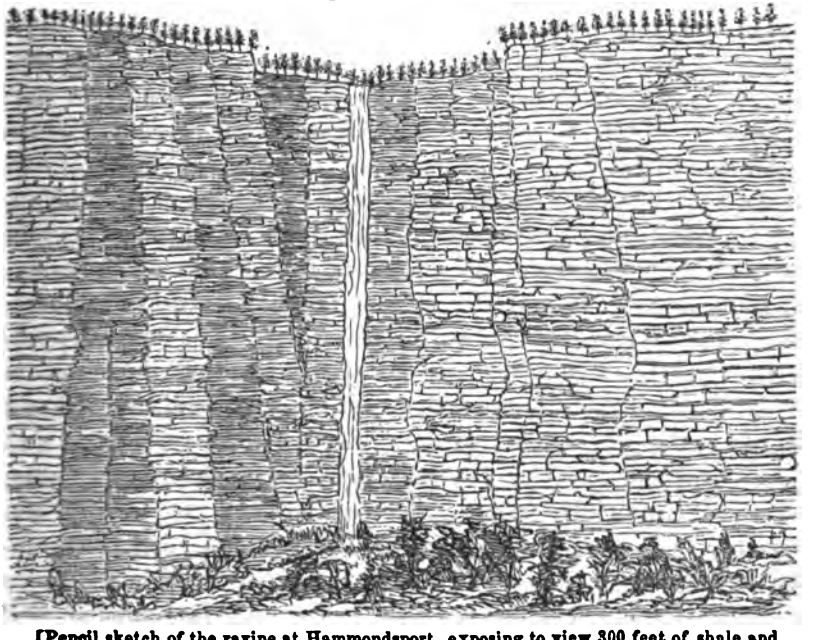
in others of coarse gravel, and in others of loam in mass, or mingled with sand and gravel; in other places the sand, gravel, and loam, and clay lie in distinct strata upon each other. The depth of these deposits of drift varies from above forty feet to two feet. Upon the hills the rock sometimes comes within two feet of the surface, and in other places is not reached in fifty feet. Howard Flats present a depth of alluvial deposit singularly deep as well as unique. Though slightly elevated above the general surface, this section of the county presents a high valley, forming an extended swamp, and surrounded by hills, in which lies "Loon Lake," out of which valley runs Neil's Creek, along which the alluvial extends to a great depth, and is devoid of gravel, or other strata. The hill deposits are not uniform, some present their greatest slope to the north and east, and their bluff end, or shoulder to the south and west. The eastern slope is more abrupt, in many cases, than the west, the result of the action of the waters in scooping out the valleys in their course towards the ocean, or of the eddies and currents of the inland sea anterior to the drainage from their surface.



[Pencil sketch of the ravine at Hammondsport, exposing to view 300 feet of shale and sandstone.]

Of the action of these eddies and currents, we find instances in the eastern part of the county, through Wayne, Bradford and Savona. From Kenka Landing, on the eastern shore of the

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Crooked lake, to the "Wayne Hotel," and thence southward, there is a definable valley, the result of these agencies, and hills moulded thereby, and lakes excavated the whole distance. Aside from Little and Mud lakes, a succession of lakes lie along the valley of Mud creek, some of them of great depth, and surrounded by ridges and hills of every conceivable shape. From the south head of Crooked lake to the valley of the Conhocton the same features are exhibited, and marked evidences are presented of the action of water throughout; depressions and holes, as of former water courses, extend from Pleasant Valley to the small lake eastward of the village of Bath. Sink holes are seen along the valley of the Five-mile creek, far above its present level, in the towns of Prattsburgh and Wheeler. In North Cohocton, towards Naples, there are seen the same depressions, abrupt and deep, and surrounded by hills of gravel, sand, clay and alluvial. The same appearances mark the environs of Purdy and Bennett's creek, the Tuscarora, in Jasper, Woodhull and Addison, Meads in Campbell, and the Cowanesque in Lindley and Pennsylvania.

In all the deep ravines and water courses, the rocks are found out-cropping and exposed to view. At Hammondsport, in a ravine above the Stone mill, about 300 feet of rock is exposed, characterized by *forcoides graphica*. It consists of shale and sandstone, of thin layers below and thick layers above, the edges being more or less covered by crystalized gypsum. Some of the shale, near this place, emitting the odor of bitumen, and developing fragments of vegetables and iron pyrites, induced a search for coal, without evidence of success. In the town of Pulteney, at Harmonyville, near the lake shore, similar features are developed, and digging for coal with like results. Tough argillo-calcareous rock, of sufficient thickness for building purposes, is found north of the village of Bath, and also between Howard and Hornellsville, in the creek ravine. Sand-stones, of thickness and density suitable for grindstones, are found in the town of Canisteo, on the lands of Mr. Carter; in Woodhull, on the land of Mr. Stroud; in Jasper, on the land of Mr. Towsley; and in Greenwood, near the residence of John Davis. At this latter place the elevation is about five hundred feet above the Canisteo, and fifteen hundred feet above tide-water; and the source of Bennett's creek is about three hundred feet higher.

At Lagrange a salt spring rises, from which salt has been made by the inhabitants, and previously by the Indians. A sulphur

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spring rises in Urbana, about two miles southwest of Hammondsport, and also above the lake shore, north of that place. Marl and tufa are found near Cold Spring, also near Arkport, also in Troupsburgh, on the Canaseraga, south of Dansville, on the summit between this creek and the Canisteo, and also along the Five-mile creek, in the north of Prattsburgh.

At Mitchellville, in what is termed the Gulf, a high valley between Bath and Wheeler, is a bed of clay of unusual depth and tenacity, in which was found the tooth of a Mastodon about ten inches in length, also a large bone which was crumbled by the action of the air.

SOILS.

Soils are formed by the decomposition and crumbling of rocks. From the character of the rocks, therefore, the composition of the soil is inferred. The soil of a section of country would always partake of the character of the underlying rocks were it not for diluvial action; but it has been shown how rocks have been subjected to the action of waters, and the soil been carried with them to different localities.

The clays and sand deposited by water have been changed by chemical and mechanical action, breaking them and re-arranging them into other formations—the atmosphere acting on the surface, and the rains and elements affecting the interior, so that in the lapse of time there was a gradual fitting to support vegetable life—the lichen, then the moss, and after them the grasses and the sedge, these yielding to shrubs and forest trees, until the whole surface is covered with organic life. These dying and falling to the earth, produced further action and change in the soil.

The soils of Steuben county differ in different places, and change from hill to valley. Upon the former, the general character partakes of the underlying rock, while the latter is a mixture of the first with those materials transported by currents of water from their upper sources. The wearing away of the sandstones and the shales, transported to a distance with a sifting action, its chemical composition may be said to be that of comminuted rocks.

The effect of a current of water upon soil, is to sift it, and thus mechanically to alter the character in different places, producing accumulations of light sand in some localities and of heavy clay in others. Thus sand and gravel constitute much of

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the soil of the upper valleys of creeks and rivers, and the finer particles of clay and moulds, those of the lower. Thus the soil of the upper Conhocton and Canisteo is coarser than that of the lower, except, perhaps, where the confluence of two streams, as at Canisteo and the Painted Post, throws a deposit of the mixture of both.

The clay soils of our county contain but a small portion of *alkaline salts*, as also of magnesia and lime. The stiff clays, resting on beds of sandstone and shale, afford rarely more than one per cent. of lime, indicating to the agriculturist the necessity of its application to produce cereal crops. The proportion of lime is greater in drift clays, sand and gravel, particularly in the river and creek valleys. Where there is a deficit of lime in the soil, it can readily be supplied from the marl beds scattered over the county.

On a clay and loam soil the descending rains are filtered of the carbonates and the basis of all other salts held in solution; and when we consider the vast quantity of water flowing through the ground, a supply of these are held sufficient for all the wants of vegetation.

The marl beds of Steuben county are composed of a large portion of vegetable matter, each containing animal matter arising from the decomposition of minute fresh water animals, and also a deposit of very fine calcareous matter from water. Some of the poorest marls will yield twenty-five pounds of phosphoric acid to every ton of dry marl. As far as a supply of marl can be obtained, it will be found valuable aid to the soil, imparting to it carbonate of lime and phosphates at a small expense. In some localities the marl is so mixed with earth as to be merely a calcareous clay. In the town of Urbana, a spring deposits calcareous matter in the form of tufa; these marls are constantly increasing as the water flows over them, and in some localities casts of leaves and of wood abound in them.

Peat or muck is found in the swamps and low grounds. Wherever there exist a permanent moisture and a subsoil of clay or marl impermeable to water, muck is produced. It is formed of successive growths of vegetation, which have died and become brown or black. It is so spongy and retentive of water, that by successive growths it raises its bed and appears in mounds and hillocks; this is sometimes aided by deposits of tufa forming beneath it. The principal swamps filling up in the way of the

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formation of muck, with probably tufa beneath, are that around Loon lake, one near Arkport, one north of Howard Flats, one in Addison, near the Pennsylvania line, near Mud lake in Bradford and Orange; in Savona, several along the valley of Mud creek; in Prattsburgh and Wheeler, near Duck lake. This latter evidently extended, at some former period, far eastward into Urbana and Pulteney, forming a lake of water some two or three miles in length, but is now filled and grown over with trees, shrubs and grass, crowding the waters to a small area. Several small swamps in the valley of Mud creek exhibit the same appearance. Upon some of the high hills in the northern towns, swamps abound, filling in from year to year with decaying vegetation, which will always furnish the farmer with abundance of compost to enrich and restore his uplands.

OF SOILS GENERALLY.

Of soils, the composition, liability to solution, the structure and position of rocks, have an important influence. Each of the groups imparts to the overlaying soils some of its distinguishing characteristics, and, to a certain extent, makes them what they are. Agents transport and intermingle soils that have originated from distant places. Limestone rocks are liable to a constant loss of material by water, which affects the soil; shales and slate disintegrate rapidly; the lime dissolves out, leaving the sand on the surface, which falls off, leaving a new surface, from which the lime is dissolved and the sand falls, until the whole mass is disintegrated and intermingled with the soil. The dissolved lime passes down, cementing pudding stones and concretions, or percolates into and through the rocks and forms stalactites, veins, or other deposits. Lime is removed from the soil in the same manner that it is from the rocks, by vegetation, through the ordinary action of water. From the composition of rocks, and the nature of drifts and alluvials, our practical farmers can learn with sufficient certainty what their lands are composed of. To judge of the productiveness of a soil, we are to look at its texture, its composition, its substratum, and its elevation.

The texture of the soil must be loose to permit the free penetration of roots, and the access of air and water. A close texture that will exclude air and water, will always be unproductive and valueless.

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The soil must be composed of certain elements to render it productive, such as silex, alumine and lime. Where the silex is too abundant, the soil is too open and loose; the last renders it too close and tight. Mechanical effects, as pulverizing the soil, are essential to productiveness and vegetation.

In evidence of the proper constituents to make up a productive soil, the analysis of the ashes of vegetables produced:

	Silica.	Lime.	Alumine.
Wheat	48	37	15
Oats	68	26	6
Barley	69	16	15
Rye	63	21	16
Red clover	37	33	30
Potatoes	4	66	30

It is said that the most fertile soil, formed by the mixture of different earths, yields as follows: Coarse silex, 25; silica, 21; alumine, 16; carbonate of lime, 37.

The substratum affects the soil. If it is an impervious clay, the soil will be wet and cold. Such soils will not produce grass or grain of any value—they will yield birch and alder of little use. These soils retain water to saturation, which tends to puddle and render the soil more tenacious and unproductive. The surface water evaporating makes the soil cold and totally unfit to grow vegetables of use or value.

The elevation affects the productive value of soil. Our most useful vegetables cease to flourish and to come to maturity beyond a certain elevation. The line of perpetual frost marks the limits of all vegetable life. In our latitude corn will not come to maturity at an elevation of 1,500 feet above tide-water. Latitude and elevation both influence the productive value of soil. It is ascertained that an elevation of 300 feet is equal to one degree of latitude. Hence an elevated soil of 300 feet above tide-water, at latitude 41, will be the same as soil in 42 degrees of latitude on a level with tide-water. These considerations are of value in estimating the productiveness of soils.

Aside from the influence of latitude and elevation, soils may be unproductive by the want of proper constituents to produce crops, or may deteriorate by the consumption of alkaline earths, as lime or magnesia, by the removal of crops from lands in a high state of cultivation—for the greater the crop, the greater the exhaustion of soil. The deterioration may take

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place by the production of successive crops of the same kind, or by constant cultivation, which has a tendency to reduce the soil to an impalpable state, and to render it too compact by destroying its vegetable mould. The soil may, also, when cultivated, be washed away by floods to places remote. All these considerations present themselves in the discussion of our subject, together with the proper remedies to restore the soil to a productive state when exhausted by cultivation or deficient in some ingredient necessary to its productive capacity.

If the soil is defective in any of its elements, it is to be supplied the deficiency artificially. If it is argillaceous to excess, then use sand. If sandy to an excess, then use clay or loam. Manures will not supply these defects, and when the farmer finds his crops gradually diminishing, notwithstanding the use of manures, he may be sure that the defects are owing to the want of some proper element. If alkaline earths are in deficit, they can be supplied by the application of gypsum or lime.

ALLUVIAL DEPOSITS.

These are found principally in the valleys of the rivers and creeks. They have been accumulating for years, and will continue to accumulate in an increased ratio in proportion to the increased cultivation of the soil. But a small portion of the soil is removed by the rains, where its surface is covered with forests, or with grass sward. But the tillage of the soil, and other improvements of civilized life, expose the naked earth to the action of the surface waters, so that every rain transports more or less earthy matter from the hills into the lower valleys and ravines. Great quantities of the finer materials are transported into the creeks, and are carried into the rivers, and held in suspension until eddy currents, or tranquil waters, allow them to settle. Almost every creek entering a river has its delta, composed of the clayey or muddy alluvions brought into it and deposited.

The lower alluvions of the creeks and rivers are composed of ooze and fine silt, mixed with the remains of organic matter. These are found wherever eddies occur, caused by a turn in the direction of the stream, by islands, bars, shoals, by rocks or sunken logs and trees. These deposits, when covered by water, produce a great growth of water plants, by the decay of which the deposit is increased, until it reaches the surface of the

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water, when it produces a heavier growth of vegetable matter, which increases the deposit until it becomes dry and fitted for tillage, and the production of crops.

Alluvions are formed by the combined effects of the growth and decay of organic matter, and the deposits of water flowing through them. These are termed marsh alluvions. The nature of the material forming them varies according to local causes; if the water be loaded with earthy matter, then muck will predominate. If the soil contain lime or calcareous matter, then fresh water molusca will exist to produce shell marl. If vegetable matter alone predominates, it will accumulate in the form of peat.

The ooze or muck of our swamps and pond holes, is a black mud composed of earthy matter, with decayed remains of plants, of animals, and their excretions. It is highly valuable for manure. These alluvions exist more or less throughout the county—at the Painted Post, in the town of Campbell, in Bradford, in Howard, Hornellsville and Fremont.

There is not, indeed, a town but has more or less of them in valley and hill, wherever water and vegetation combine to produce them.

VALLEYS.

The valleys are occular evidence of the action of water. The general surface of Steuben county, without that action, would have been the average of the elevation of the hills. The waters in their several courses towards the ocean, have excavated channels, which, from year to year, have deepened and widened, until they present the features of hill and valley everywhere existing throughout the county. In various places, walls of shale, with superincumbent sandstone, have been broken through, forming deep and wide valleys.

In the town of Campbell, and partly in Hornby, Mead's creek has channeled out a valley to the Conhocton, deep and tortuous through the hills; through Wayne, Bradford, and Savona, to the valley of Mud creek, extending northward to the head of Little lake, and thence to Kenka. The valley of Crooked Lake is the deepest, exposing the broken rock to the depth of from three to four hundred feet, and the debris therefrom along its shores. This valley extends from Bellona, in Ontario county, to Branch Post; from Penn Yan to Hammondsport, and thence to Bath.

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The valley of the Conhocton is the widest, and the excavation of hills more uniform than that of any other, except, perhaps the Canisteo. It stretches from Livingston county, where it is scarcely perceptible, to Chemung county, with branching valleys, on either side, made by tributary streams. Next of importance is that of the Canisteo river, receiving its slightest indentations in Alleghany, and reaching the level of the Conhocton and Tioga, at the Painted Post. This valley is narrow and crooked, except at the mouth of Bennett's creek, where the flats are wide, and the hills retiring, and at the mouth of the Tuscarora creek at Addison. This valley develops much of the debris of the grits and shales, through which the waters have forced a passage. The valley of the Tioga passes from Pennsylvania northward through Lindley and Erwin to the Canisteo; in its course it is intersected by the Glendening and the Cowanesque, the latter extending upwards to Troupsburgh.

HILLS.

In the south part of the county of Steuben, the highest lands extend from the western line of the town of Lindley, through southern Addison (now Tuscarora,) through southern Woodhull, thence northwest, through the north east part of Troupsburgh, to the south line of Jasper; thence westward to Greenwood, and southwest to the south part of West Union, where the source of Bennett's creek is 800 feet above its junction with the Canisteo and the surrounding hills, from three to four hundred feet higher.

Between the Canisteo and the Conhocton rivers, the summit of highlands commences in the town of Dansville, passes near South Dansville post office; thence through Fremont and Howard, to the west of Howard Flats; thence south, to the south line of the town of Howard, following the south line eastward to Cameron; thence southeast, through Thurston, the northeast part of Addison to Erwin.

The summit highlands, north of the Conhocton river, is the dividing ridge between the waters that flow into the Chesapeake and those that flow into the St. Lawrence. It commences in the town of Wayne, north of the Wayne hotel, and follows the highlands, between Little lake and Crooked lake, to Mount Washington; thence westward to the south line of the town of Wheeler; thence north through the eastern lots of Wheeler to the south

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east corner of the town of Prattsburgh; thence through Western Pulteney north to the county line; from thence west to North Cohocton, where the ridge curves into Livingston county; and thence through Wayland to South Dansville, to the summit between the Canisteo and Conhocton.

The waters running north to the St. Lawrence interlock with those running south to the Chesapeake. Cold Spring creek takes its rise two miles north of Bath, while the head waters of Mud creek, and the Five Mile creek, are in Yates county, some twenty miles north. In the north part of the town of Prattsburgh Flint creek rises, near the head of the Twelve Mile creek, and the waters of the Canadesaga rise far south of those of the Conhocton.

LAKES.

The lakes of Western New York are marked characteristics of the geographical features. The most of them discharge their waters into Lake Ontario, through the Oswego river. The Canandaigua, the Crooked, Seneca, Cayuga, Owasco, Skaneateles, Onondaga, and Oneida, having their head waters far in the southern tier, drain all the intervening territory to the north. All of them lie in valleys of excavation, far down through the rocks that underlie the soil; the Oneida through the gray sandstone which forms its bottom, covered with drift; the Skaneateles through over three hundred feet of the Hamilton group, with the Tully limestone out-cropping on both shores; the Cayuga and Seneca Lakes through the Marcellus shales and the superincumbent Hamilton group and Tully limestone, the latter ranging from 420 to 630 feet in depth.

The Crooked Lake is a beautiful sheet of water; it extends from Penn Yan in the county of Yates, to Hammondsport, a distance of about twenty miles, with a branch to Branchport, seven miles. This lake exhibits an excavation of more than 300 feet through the shales and grits of the Erie group. The waters are fed by springs, supplied with water by the rain falling on the surface of the surrounding country, which passing through the seams and fissures of the rocks, rushes into the basin below the surface of the lake. No streams of any magnitude flow into this lake, except the Cold Spring brook at Hammondsport, and the Lazallier creek at Branchport. The lake abounds with whitefish, trout, and perch, of fine quality, of which numbers are taken annually to grace the tables of our farmers who take the trouble

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to seek them. During the summer months the transportation of agricultural products and articles of commerce employs many boats, aside from a beautiful steamboat, which makes daily trips between Hammondsport and Penn Yan. Crooked Lake lies 271 feet above the waters of Seneca; its outlet discharges 144,065 gallons per minute, with a current of 132 feet per minute. The outlet runs from Penn Yan to Dresden a distance of seven miles. Boats pass to and from the Seneca and Crooked Lakes by way of the Crooked Lake canal, thence to the Erie canal, affording a direct and cheap transportation to the sea board for all the products of the surrounding country. The valley of the Crooked Lake drains the lands in Urbana, partly of Wayne, and of Pulteney. The hills rise up on the west shore some 300 to 400 feet above the waters, and on the east shore 200 to 300 feet; Bluff Point is a marked object between the branches of the lake; high, bold, prominent, and bluff, it stands prominent above the surrounding scenery in all its magnitude of outline and picturesque beauty.

Little Lake, elevated above Crooked Lake some two hundred feet, and distant but 2½ miles from it, in the town of Wayne, is the summit of a different grade, and the tributary of waters that flow south into the Chesapeake. An excavation of a few feet, at the Wayne Hotel, would pass the waters into the Crooked Lake, and into Lake Ontario; yet the natural drainage is to the Conhocton. This lake is near three miles long and about half a mile wide. It abounds in fish, such as pickerel, perch, whitefish, and trout of the finest quality; it discharges its waters southward into Mud Lake, near Wayne Four Corners; its chief tributary is a small stream which enters it from the north at Wayne Hotel, otherwise it is fed by springs.

Mud Lake, aside from the waters of Little Lake, is fed by the Tobahanna creek, and the creek running from Pine Grove, through Tyrone, to the lake. This lake is about two miles long and half a mile wide, abounding in fish of good quality. The outlet of this lake is called Mud creek, and enters the Conhocton at Savona. In its course are several small lakes, singularly deep, partly grown and filled up with vegetable mould and tufa; in the town of Savona there are a succession of them, which afford a study for the geologist and the natural philosopher; how they were excavated amid the surrounding hills to their extreme depth, how detached, each from the other, and yet exhibiting a chain of causes and effects identical throughout.

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In the south-east part of the town of Prattsburgh lies Duck Lake, now about half a mile long, and a quarter of a mile wide, but evidently in years gone by more than twice that size. The marsh surrounding this lake has been gradually encroaching upon its limits for years. This marsh extends more than half a mile eastward and southward and is filling up gradually with decayed organic remains. Duck Lake is filling in with drift and mould, its waters are full of decayed vegetable matter held in suspension; they abound in fish; depth six to ten feet. The creeks running into Duck Lake are the SCUTT CREEK, which rises in the vicinity of *Scuttville* passing westward through the marsh into the lake, and the *Waldo* creek which rises in Pulteney and runs south-west, entering the north extremity of the lake through the lands of Charles Waldo. This lake discharges its waters through a narrow and crooked outlet of some forty rods in length into the Five-mile creek. This lake and outlet, by statute law, has been declared a public highway, for the benefit of those who are disposed to use it to float lumber down the Five-mile creek to saw mills, or to a market below.

Loon Lake, in the town of Wayland, is situated in a high valley. The outlet of this lake passes for some distance under ground and comes to the surface with a volume of water sufficient to drive a mill. It runs northward, while the waters of Mud Lake, a little distance south of Loon Lake run south to Neil's creek. The surroundings of Loon Lake are marsh and swamp. This lake is over a mile long, and three-quarters of a mile wide. The summit here is 1,800 feet above tide water.

Eastward of the village of Bath lies a beautiful little lake, nestled amid the surrounding hills; its waters pure and clear; its name Salubria. How the little gem came just there is more than we can tell, probably dropped there, in the general breaking up of the great inland sea, as a "tear-drop" to remind one of by-gone days. It is a beautiful sheet of water, and fulfils in all its phases all the characteristics predicated upon the name by which it is known.

In the north part of the town of Howard are two small lakes. One of them to the north-west of Howard Flats, the outlet of which empties into Neil's creek some two miles above its entrance into the Conhocton. This lake is called by the inhabitants A POND!

To the north-east of Howard Flats lies a beautiful pond or

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lake, surrounded by a fine cultivated country, termed the "Pond Settlement." This lake debouches to the south in a crooked outlet, which runs past Goff's Mills, thence north-east to the Conhocton. Along this outlet and creek are developed some of the most remarkable characteristics of the geological features of the county. Ascending the creek to and past the mills of Alonzo Graves, we find rocks of shale and grit in masses, here thrown up in rounded hills, and there torn asunder by the passage of the water. The valley of this stream throughout is in marked contrast with the alluvial character of the Howard Flats above.

In the south part of the town of Thurston is a small lake, "FRIENDS' LAKE," the outlet of which passes southward through the hills to the Canisteo, near the residence of E. Stickney. This outlet is in character with all the streams that are precipitated from the hills into the valleys below. In dry seasons it secretes its waters beneath the debris of the shales scattered along its channel. In wet weather it is the mad mountain torrent, sweeping every thing in its course, and excavating rock and gravel as a pathway for its tumbling waters.

In the extreme north-west corner of the town of Addison lies "GOODHUE LAKE," covering an area of 500 acres, surrounded by hills and forests of pine. It is the head of "GOODHUE CREEK" which passes south-east through the town, affording hydraulic power for several saw mills, until it enters the Canisteo below Addison, near the tannery of "Paxton & Turner." This is a wild picturesque stream of water in all its surroundings of hill and valley, sometimes beautiful and quiet amid its tortuous course, and sometimes impetuous, lashing and surging against the hills as it hastens downward to the Canisteo.

RIVERS.

The principal rivers of Steuben county are the Conhocton, Canisteo, Tioga, Chemung, Cowanesque, Canaseraga and their several tributaries, denominated creeks.

The Conhocton stretches from the summit, in Livingston county, to the extreme south-east part of the county, where by the junction of waters the CHEMUNG is conceived, which retains the cognomen until it is merged in the Susquehanna. The head waters of the Conhocton are found in the town of Springwater, Livingston county, far north among the hills, and north of the inlet of Hemlock Lake, which empties north into Lake Ontario. Thence

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it enters the north-west corner of the town of Cohocton, passing through Avoca, Bath, Savona, Campbell, Erwin and Corning, where it assumes the name of Chemung. This river, together with its tributaries drains all the northern and middle portions of the county; upon its waters have been rafted much of the timber of the county, and formerly a large quantity of grain was floated to market in Pennsylvania and Maryland. The Conhocton was declared navigable from the "*twenty-two mile tree*," (*Bivin's Corners*, now "*Blood's*,") to the Painted Post, and Gen. McCLURE as early as 1795, constructed an ark 75 feet long, and 16 feet wide, and passed down the river, with a cargo of staves, to near Harrisburgh. The General also in the year 1800, ran arks from ARKPORT on the Canisteo, to Baltimore, which were the first arks that descended that river.

The Canisteo river takes its rise in the towns of ALFRED and GROVE, in ALLEGHANY county, and passes eastward through Steuben to the Painted Post, where it unites with the Conhocton. This river and tributaries drain the south-western part of the county; its flats rank with the most fertile lands, and the surrounding hills furnish the most valuable lumber. It was at the upper flats of this river, at the mouth of Bennett's creek that canoes were excavated in preparation of the foray against Wyoming, and also for the defence of the Indians against the invasion of Sullivan. The CANESTEES were as noted, in by-gone days, for their chivalry and bravery, as the present citizens of that beautiful territory are for their public spirit and vivacity. In the year 1800, Christopher Hulburt built a raft at Arkport and ran it laden with wheat to Baltimore, and about the same time John Morrison also ran a raft down the river. It is said, however, that Benjamin Patterson ran the first raft upon its waters.

The TIOGA river rises in Pennsylvania, and enters Steuben county from the south, in the town of LINDLEY, running north to the Canisteo, midway between the Painted Post and Addison. Near the Pennsylvania line the Cowanesque creek enters the Tioga. This creek has its rise in the town of Troupsburgh, from that town, it passes into Pennsylvania, and thence into the town of Lindley, entering the Tioga near the State line. The valley of this creek presents some of the most beautiful and fertile lands in the State. In the year 1787, the westernmost dwelling of the white man of the southern tier of New York, was located at the mouth of the Cowanesque, and on Christmas day of that year,

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Judge Baker, the pioneer of Urbana, set out, accompanied by an Indian, to explore the wilderness beyond the Canisteo. At that time a man by the name of HARRIS had his cabin at the junction of the Canisteo and Conhocton, for the purpose of trade. These two were the first cabins erected in Steuben county.

The TUSCARORA creek rises in the town of Jasper and passes by a tortuous course through the south-west corner of Rathbone into Woodhull, thence to the Canisteo opposite the village of Addison. The hills on either side of this creek are quite near in their approach, leaving a contracted valley of fertile alluvial. This creek drains the south-east part of Jasper, the town of Woodhull, southern Addison and Tuscarora. These towns rank in fertility of soil, and grazing adaptation, with any portion of Steuben county. The hills and valleys of the Tuscarora and its tributary creeks furnish some of the most favorable advantages for wool growing and dairy purposes to be found anywhere.

STEPHEN'S CREEK has its rise in Jasper, near the head waters of the Tuscarora, and runs north through the hills to the Canisteo, where it enters the river a little below the mouth of Bennett's creek. Throughout the course of this creek the country is elevated into high hills and precipitous valleys, presenting features broken, bold, picturesque.

BENNETT'S CREEK rises in the town of West Union, at an elevation of 800 feet above the Canisteo river. Here the hills are about 2,500 feet above tide-water. The highest source of Bennett's creek is a little south of the residence of J. McNeil; thence it runs north past Rexville, "*Rough-and-ready*," Greenwood, Canisteo, where it enters the Canisteo river in a broad and beautiful delta of fertile flat lands. This creek excavates to view some of the grits from which are quarried grindstones. Its upper sources are in a fine lumber district; its valley somewhat contracted by the approach of hills, through which are precipitated numerous small, roaring, rattling runs of water, whose beds are paved with shale, broken stone and gravel.

PURDY'S CREEK is a principal tributary of Bennett's creek. It rises in the southwest corner of the town of Hartsville, and runs through a narrow valley northeasterly to the Bennett's creek, near the residence of H. Easson. The bed of this creek is covered with the debris of rock and shale, broken and torn asunder by the precipitous waters.

CROSBY CREEK rises in Allegany county, and runs through the

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northwest corner of Hartsville, into Hornellsville, and enters the Canisteo at the village of Hornellsville.

The Canaseraga rises in the south part of the town of Dansville, and runs north into Dansville, in Livingston county, thence to the Genesee river.

Neil's Creek rises in the high valley of Loon lake, out of Mud lake, and runs south into Howard, thence east and north to the Conhocton.

The Five Mile Creek, Ten Mile Creek, and Twelve Mile Creek, severally rise in the north part of the town of Prattsburgh, and run southwesterly into the Conhocton; the Five Mile at Kanona, the Ten Mile at Wallace's mills, and the Twelve Mile at Wallace's station. These several creeks form the principal valleys of the towns of Wheeler and Prattsburgh. A tributary of the Twelve Mile creek, the Martin Hayes Creek, rises from a spring at the residence of Isaac Vermilye, Esq., in Prattsburgh, and passes through a deep valley westward and south to the Twelve Mile creek, north of the residence of A. P. Lyon, Esq.

Cold Spring Creek rises partly in Bath and Wheeler, forms quite a stream at the old Henry Townsend place, and thence runs through Pleasant Valley to the Crooked lake, at Hammondsport. The "Cold Spring mill site," with 200 acres of land, was owned in 1800 by a man named Skinner, a quaker. In 1802 General McClure purchased it of Skinner and erected a flouring mill, fulling mill and a carding machine. He also built a schooner on Crooked lake to trade with Penn Yan, and erected storehouses at each end of the lake. Gen. McClure sold the mills and land at Cold Spring to Mr. Henry A. Townsend in 1814, who occupied them until his death in 1839.

Mud Creek rises from Mud lake, and runs southeasterly through Bradford and Savona to the Conhocton, at Savona. At the outlet of Mud lake Frederick Bartles located himself in 1793, and built a flouring and saw mill, making the place quite noted, and *prospectively* quite a large town. In 1796 he was offered a large sum for his place, which he refused. In 1798 he rafted over 100,000 feet of lumber from his mills to Baltimore, Mud creek being then navigable; and in 1800 he ran two arks from the same place. From these events, "Bartles' Hollow" became of great renown, and the commerce of Mud lake quite promising in futurity. A record was made of these events by Henry A. Townsend, county clerk, in the *first* volume of Book of Deeds of the

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county of Steuben, "to show at a future day the first commencement of embarkation in this (as is hoped) useful invention." The spirited resident of Bradford, Mr. Munson, is now the principal proprietor of the Hydraulic Works of Bradford Hollow.

The *physiology* of Steuben county presents a bold outline of irregular hills and intricate deep valleys, through which pass rivers and creeks. The north and west parts of the county occupy the summit from whence the slope is to the southeastern extremity of the county, where the Chemung passes the line and flows towards Elmira. The slope towards that point is, indeed, from the north, the west and the southwest, where the head waters of the Conhocton, Canisteo and Tioga rise, all of them converging to a junction at Corning, and passing into the Chemung. The streams, aside from the rivers named, which flow down this slope, are creeks of different size, their valleys are bounded by hills from two to eight hundred feet high, and at some places a few rods in width, at others a mile or more. From a circle of hills, all these waters flow down to the narrow valley of the Chemung, some 800 feet below their source. But the deep valley of Crooked lake breaks in upon this general phase of Steuben as an exception. It extends far towards the centre of the county, and carries to the north the waters of three or four towns. It is a dark and deep excavation of some eighteen miles within the county, breaking into the summit of separation between the waters of the Chesapeake and those of the St. Lawrence, the same as the Seneca and Cayuga farther east.

It is a singular feature of Steuben county, that the hills, however precipitous, irregular or elevated, are capable of cultivation to their summits, and that some of the highest afford the best pasture and yield the best wheat. Take the elevated hills of Howard, of Troupsburgh, of Fremont, of Prattsburgh and Conhocton, and we find upon their highest elevations growing the finest crops of wheat, oats and barley, as also all the finer qualities of grasses for grazing purposes. Mount Washington, at an elevation of some 1,600 feet, is quite a prospered farming district, producing grain and grass. Lent Hill, perched upon the very "rim of the summit," is noted for its productive soil, adapted to cereals and grass.

Oak Hill, and the highest elevations in Troupsburgh, Jasper and Woodhull, abound with rich, productive farms, from whence some of the best products are marketed.

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In an undulating and hilly country, through which run numerous streams of water, an immense hydraulic power is furnished, affording useful and profitable employment. This power is not located in any one particular region. It is as widely and universally disseminated over the broad surface of the county, as the rains that fall upon it. There is not one town in the county but has water power to some extent—Pulteney, perhaps, the least. The Five, Ten and Twelve Mile creeks furnish Prattsburgh and Wheeler; the Conhocton and Neil's creek the middle portion; the Canisteo, Tuscarora, Bennett's and Tioga the southern and western, and Mud creek the eastern. The waters of none of the rivers and creeks were allowed to run idle, but were harnessed to saw lumber, grind grain, to drive forges, and to manufacture implements and useful materials. In 1808, Captain Jones Cleland built mills at Liberty Corners. In 1810, Caleb Smith built a grist mill on the Tuscarora. In 1793, Frederick Bartles built mills at the outlet of Mud lake; Gen. McClure, mills at Cold Spring valley, in 1802; Captain Williamson, at Bath, in 1793, a saw mill and also a grist mill.

As the several towns were settled, the first improvement in hydraulic power made, was to erect mills for sawing lumber, and next to flour grain; after that followed machinery for carding wool, then for spinning and manufacturing. River and creek were successively diverted from idle babbling over their rocky beds to these useful ends, in every neighborhood.

In passing through the several towns of the county, relics of mills of former days may be found, as the old Holton mill, in Lyon's Hollow; the old Waggoner saw mill, at Harmonyville; "Model Mills," now in full operation, as at Hornellsville, at the Post, at Bath, Kanona, Addison, Avoca, Goff's, and at Howard.

PART II.

Original state of the County and Settlement.

The original condition of all the territory comprised in Western New York was that of a dense wilderness, through which roamed the Indian in quest of game. Their villages were scattered, principally near the rivers and lakes with which the country abounds. In 1768 the Indian settlements extended in New York as far east as a line drawn south, from Fort Stanwix to the Pennsylvania line, and their principal villages were Oneida, On-

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ondaga, Cayuga, Canadasega, Chenusio, and Karaghiyadirha; the smaller villages were Canadasagey, (now Canandaigua,) Ganuskago, (now Dunnsville,) Kanestio, (now Canisteo,) Todevighrono, (now Ithaca.) The chief Indian paths, at that time, ran from Oneida, through Onondaga to the Seneca river at Cayuga, thence to Canadasega, Canandaigua, Chenussio (Geneseo,) and to Fort Schlosser on the Niagara river; from Geneseo a path ran south to the Alleghany river, thence north east to Kanestio, at the junction of Bennet's creek with the Canisteo river. At that time the territory west of the Crooked Lake was unexplored by the white man. In a map drawn by Guy Johnson, in 1771, is written, "There are more lakes hereabouts but they cannot be laid down with certainty."

The Seneca Indians were the original proprietors of these lands. They were looked upon in the confederacy of the six nations as the "Western door," through which all communications from the west and south must be made to the nation; hence we find Sir William Johnson addressing them as follows: "You have always been looked upon as the door of the six nations, where all news, especially from the westward and southward, must enter and go out." The principal village of the Seneca Indians was near the Genesee river, about twenty miles from Irondequoit bay. The Senecas were a consituent of the six nations, which in its confederated capacity were called the "Iroquois," who were greatly superior in courage and military skill to the other Indians of America. They were the terror of all the other tribes, and extended their conquests over a tract of country 1200 miles in length, and 600 in breadth from east to west. In the year 1770 the Senecas were the most numerous of the six nations; they could muster about 1,000 fighting men. For a long time they resisted every entreaty of the provincial governors for permission to build a fort at "Irondequoit," in their country, but finally consented.

In 1779 they met with a disastrous defeat from General Sullivan, who burnt their chief town, "Little Beardstown," lying on the eastern side of the Genesee river. This town was beautifully situated, almost encircled with a clear flat, on which extensive fields of corn were growing; these together with the village consisting of about one hundred and fifty houses were destroyed.

In 1792, between Onondaga and Cayuga there were but three houses on the road, and none between the Cayuga and Canade-

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saga. Geneva, at the foot of the lake, consisted of about "twenty log houses, and three or four frame buildings, and as many idle persons as can live in them." Eighteen miles south stood the Friends' settlement, founded by Jemima Wilkinson, consisting of about eighty families. About twenty miles south from the Friends' settlement, near the head of the Seneca Lake, was "Culverstown," and four miles further south "Catharinestown;" the whole population of these towns, together with that of Canandaigua, Newtown, and Chemungtown, was then estimated at 700.

The settlement of what was then called the Genesee country, was first attempted by Mr. Phelps, in the year 1789, which was attended with great difficulties; there were nothing but Indian paths, and the whole country was one boundless forest. Mr. Phelps left Albany on the 15th of February, and went in a sled as far as Whitestown, on the Mohawk river. From Whitestown he was obliged to proceed on horseback; he found only a few straggling huts on his way, at the distance of from ten to twenty miles, and they affording nothing but shelter from the snow, and convenience for fire. On the evening of the third day he reached Geneva. From Geneva to Canandaigua he found only two families settled, and the latter place consisted of "two small frame houses, and a few huts;" and from Canandaigua to the Genesee river only four families residing on the path. At the Genesee river he found an Indian store and tavern, and no other indications of settlement.

The lands having been sold by Phelps & Gorham to Robert Morris, and he having sold a greater part of them to Charles Williamson, agent of Sir William Pulteney, he on the 3d day of June, left the small settlement at the mouth of the Lycoming river, on the west branch of the Susquehannah, and entered the wilderness northward. In ten days he reached the Cowanesque creek. He caused a road to be made across the country, over mountains and valleys heretofore deemed impassable, which excited the curiosity of the inhabitants of Pennsylvania, and many were induced to explore the unknown wilderness to the north. Many returned back disgusted, while others pressed forward pleased with the prospects offered in the new country. It was thus that several settlements were begun in the south part of the county, the principal of which was on the Conhocton river. The village of Bath was laid out in the midst of a wilderness of nine hundred thousand acres. Early in the season of 1793 a saw

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mill was built, and before the winter set in a grist mill was finished. In the year 1794 several new settlements were made along the Conhocton, in Pleasant Valley, and Bartles' Hollow; at the same time Bath increased in population. On the most convenient sites mills were built, and roads were opened, presenting throughout the whole country a scene of enterprise and industry. So great was the influx of population into the county, early in the year 1796, that Bath, and a district of country eight miles round, was found to contain over eight hundred inhabitants; there were also two schools, one grist mill, and five saw mills. The other settlements increased also. In that year the Rev. Mr. Gray, with a part of his parishioners, settled in township 4, range 7, at the head of the Canaseraga creek. Bivin settled at the 22 mile tree (Bloods.) Buchanan settled at the 8-mile tree, (Avoca,) and kept "accommodations for travelers." Christopher Hulburt and Nathaniel Cary settled at Arkport, in Hornellsville, in 1795. As early as 1790 settlements were made along the Canisteo river by Col. Arthur Erwin, Uriah Stephens; the former on the lower flats, and the latter on the upper, where they erected a log hut for the winter, and were joined the next spring by Solomon Bennett, Uriah Stephens, jr., John Stephens, and their families. In 1793, Mr. Bennett built the first grist mill on the Canisteo; also a saw mill located on Bennett's creek, half a mile from its mouth. Here they laid out a town which they called Bennettsville, and laid out twelve lots from hill to hill across the valley, which were assigned by lot to the several settlers. The first house was built on the farm now owned by Jacob Doty.

In 1793, Mr. George Hornell settled on the Canisteo, and built a mill, now occupied by the site of the Hornellsville mills. James McBurney came to Canisteo, as a pedlar, and bought great lot No. 12. Solomon Bennett opened the first store for the sale of goods.

Tuscarora (now Addison) was settled in 1790, by Reuben Searles, who opened the first tavern, and George Goodhue built the first saw mill. Tuscarora was changed to Middletown, and afterwards to Addison; why, we are not told, but, probably by the after settlers, who came in when the original had become extinct.

In the year 1790, Col. Lindley, from New Jersey, settled the valley of the Tioga, and formed the nucleus around which were gathered the population of Lindley and Erwin. He brought his

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family and goods from Wilkesbarre in boats, and drove his horses and cattle along the rude trails on the bank of the river. At that day there were no mills near the settlement, and the settlers pounded their corn and buckwheat in a mortar, which was as primitive as all the surrounding country—a stump or log hollowed out, a sapling bent down and tied to the "pestle," formed the breaking power, while "Sambo," or perchance the Colonel himself the motive. When the river was open and leisure permitted, grain was sent by canoe to "Shepard's Mills," on the Susquehanna.

While these settlements were being made in various parts of Steuben county, Col. Williamson took much pains to induce the settlers to erect mills, and every encouragement was given to carry them into effect; in consequence, no new country was so well accommodated, and a great number of frame houses and barns were found in these settlements at an early day. Col. Williamson, to induce notice from men of wealth from abroad, established a "race course" and a "theatre." The former on the Land Office meadows, south of the village. The theatre was of logs, and stood at the corner of Steuben and Morris streets. Actors were sent for from Philadelphia, and entertainments given to visitors and citizens in drama and tragedy. At the races, gentlemen and sportsmen came from New York, Philadelphia, Baltimore and other cities. These races passed off brilliantly, and gave notoriety to the new metropolis of Steuben. A printing office was also established at Bath, and a newspaper printed, called the "Bath Gazette," published by William Kersey and James Eddie, of which from four to five hundred copies were issued weekly.

The territory comprised in Steuben, from its settlement to the year 1796, was included in the county of Ontario, which comprised the most of western New York, termed the Genesee country. By the census of 1790, Ontario contained nine hundred and sixty inhabitants. In 1796, the various settlements had assumed an appearance of prosperity and respectability, that induced the Legislature to divide Ontario county, and to erect a new county by the name of "Steuben," after the Baron Steuben, and to fix upon Bath as the seat of justice. At the time of its organization Steuben comprised six towns, viz: Bath, Canisteo, Dansville, Frederickton, Middletown and Painted Post. The county then comprised one tier of towns, now in Allegany, and the pre-

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sent towns of Barrington, Starkey, and part of Jerusalem, now in Yates; also one-quarter of a township, including the village of Dansville, now in Livingston, and Tyrone, Reading and Orange, now in Schuyler county.

The population of Steuben county, in 1790, was less than 200. At the time of its erection, in 1796, it was more than 1,000, and in 1800 about 2,000.

Shortly after the erection of the county, the town of Pulteney was settled by John Van Camp and D. Thompson. They made their first clearings on "Bully Hill," in 1797. They were followed by Abraham Bennett, who settled on the Rosencrantz place, west of Bully Hill, Samuel Miller, Ephraim Eggleston, Samuel Wallace and Ezra Pelton. The first store in Pulteney was opened by John Gulick, a little west of "Schooner Point," now Bluffport. The western part of the town of Pulteney (now Prattsburgh) was settled in 1799, by Captain Joel Pratt, through his nephew, Jared Pratt, who located himself upon the farm now owned and occupied by Luther Wheeler, a short distance south of the present village of Prattsburgh. This family was the only one in the town for about two years and a half; they endured many hardships and great privations; they had no neighbors for several miles; they had no roads, except mere trails, designated by blazed trees. The nearest mill was at Naples, eleven miles distant, to which grain was taken by laying the bag across the yoke of oxen and driving them through the unbroken wilderness to the mill.

After Jared Pratt, came Daniel Buell, who built a shanty on a knoll, now an orchard belonging to B. V. Lewis. He, like "Patterson, the hunter," employed his time in the chase for game and in roaming through the hills and valleys with jolly and eccentric Nimrods who visited the town. After him came the Rev. John Niles, who settled on the lots now owned by Israel Van Husen. He officiated at the first "divine service" held within the bounds of the town, at the house of Jared Pratt, with Mr. Pratt's family, his own, and Buell in attendance.

In 1804, came with their families, William P. Curtis, Samuel Tuthill, Pomeroy Hall and Salisbury Burton. Burton settled east of the Five Mile creek, on the farm lately owned by Willard Fay. In 1806, came Judge Hopkins, Robert Porter, Samuel Hays, Uriel Chapin, Asher Bull, Dr. Ebenezer Rice and Isaac Waldo, forming a goodly array of settlers, who located them-

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selves in different parts of the town, and gradually spread over its territory. The first clearing made was in "*the public square of the village*," and seventy acres adjacent. The first frame building was erected in 1804, which now stands back of Bishop Smith's storehouse—*an old, neglected barn.* The first merchants were Joel & Ira Pratt; the first tavern-keeper Aaron Bull, whose hotel stood where the block of brick buildings erected by Martin Pinney, Geo. E. Hays and Samuel Hays now stands. The first church was erected in 1804, and the first church building in 1807.

The town of Wheeler was settled by Captain Silas Wheeler, a brave, bold man, who followed Montgomery to Quebec, and was four times taken prisoner during the Revolutionary war. He finally escaped being executed as a pirate by the intercession of the "famed Henry Grattan." He came to Prattsburgh in the year 1804, and settled on the farm owned by Grattan H. Wheeler, about six miles south of the village of Prattsburgh. After him came Thomas Aulls and Col. Barney, from Pleasant Valley; also Philip Myrtle, who settled on the farm now occupied by General Marshall. Captain Wheeler opened the road through "the Gulf" to Bath, the road south to Kennedyville, and also built a saw mill at the narrows of the Five Mile creek.

In 1806, Abraham Johnson settled in Howard, where Richard Towle lived, Samuel Baker settled where J. Rice lived, and Reuben Smith and Ab'm Bullard on the road from Goff's mills to the old turnpike. Goff's mills were built by Henry Kennedy in 1809; William Goff bought of him in 1812, when there were about thirty families in town.

The town of Cohocton was settled by one or two persons quite early after the settlement of Bath. "Bivin" kept tavern at Blood's; James Woodward came shortly after to the "Raymond settlement." Joseph Chamberlain settled near "Liberty Corners." He for a long time lived in the most primitive manner, having nothing alive around him but a cow and a dog. The Bronsons settled at Loon lake about the same time, and others came in, filling up the intervals. The first mill was built by Captain Cleland, and the first frame house was built by Levi Chamberlain. The first public house, at Liberty Corners, was kept by Joseph Shattuck. The first settler upon "Lent Hill" was Abram Lent, who married Betsey, the eldest daughter of Samuel Hartwell, a nephew of Roger Sherman, and who married

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Elizabeth Wilkinson, a sister of "the Friend." Samuel Hartwell passed through many adventures during the war of 1812—was taken by the British, carried to Kingston and confined in jail. He succeeded in breaking out, and made his escape to the States. He made his way to Jerusalem, in Yates county, and afterwards moved to Cohocton, where he and his wife died.

In that part of Painted Post which is now in the town of Campbell, Joseph Stephens and Robert Campbell first settled. The first blacksmith was Elias Williams. They who bought farms at an early day along the river flats were Samuel Calkins, James Pearsall, Joseph Woolcott and David McNutt. Several hunters came in and made the territory temporary visits; one by the name of Isaac Thomas was particularly noted for his sporting and hunting propensities.

Above the village of Bath, on the Conhocton river, came at an early day Abraham Towner, John Donahe, and further northwest in the town came Joseph Timmerman, who located himself on a farm, now at the depot in Wayland; also Captain Bowles and Walter Patchin. At this time there was no road in all this part of the town of Bath, except the one from Bath to Dansville, opened by Captain Williamson. The early settlers of this district had to endure many privations and great hardships. Upon occasion of the total want of grain, they were compelled to take the unripe wheat to live upon until the crop matured sufficiently to be floured.

The "Nash Settlement," in the north part of the town of Hornby, was first settled by Uriah Nash. He was followed by Ezra Shaw, Samuel Adams and Jesse Underwood.

In the northeast corner of the town of Corning, opposite to the residence of G. E. Gardner, on the bank of the creek, stands "*the old Indian tree*," under and around which the "*native citizen*" has spent many hours in devotion to the Great Spirit, and in communing with the memories of the past.

These settlements in different parts of the county had increased the population to about 2,000, and the subduing of the forest had, in earnest, begun. The lumber manufactured at the saw-mills, and the grain raised, was taken to the Susquehanna and the Chesapeake, opening quite a market for the settlers, and inducements for persons from abroad to locate in the country.

"The Painted Post" was known throughout the State as a monument of Indian chivalry and prowess. Upon the celebrated

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post were painted the symbols of victory, and to such as could read them, the record of deeds of bravery and of triumph over enemies. The "Post" was alike known to traveler and scholar long before "Harris the trader" had pitched his cabin at the place, or Ben Patterson the hunter had boated his goods up the river and opened "the old tavern at Knoxville." It was at the Post that Joseph Fuller kept the first tavern called the "Painted Post Hotel."

POLITICAL DIVISIONS.

When the county of Steuben was erected, it was divided into six towns: Bath, Canisteo, Dansville, Fredericton, Middletown, and Painted Post. The town of Bath comprised all the north part of the county; the town of Dansville all the northwestern part; Fredericton all the eastern part; Canisteo all the southwestern part; Middletown all the southern, and Painted Post all the southeastern, viz: Hornby, Campbell, Erwin, Painted Post, Caton and Lindley. The town of Bath originally comprised all the territory now contained in Bath, Urbana, Bradford, Wheeler, Prattsburgh, Pulteney, Avoca, Savona, part of Cohocton, and Howard. The town of Dansville contained all that is now comprised in Dansville, Fremont, Wayland and part of Howard and Cohocton. The town of Fredericton contained all that is now comprised in Wayne, (Barrington, Starkey, in Yates,) Tyrone, Reading and Orange, in Schuyler. The town of Middletown contained the present Addison, Rathbone, Thurston, Tuscarora, Woodhull, and part of Troupsburgh and Jasper. The town of Canisteo contained all of the present Canisteo, Greenwood, West Union, Huntsville, Hornellsville, and parts of Jasper and Troupsburgh.

The towns of Steuben county are thirty-three, as follows, viz:

1. Addison.
2. Avoca.
3. Bath.
4. Bradford.
5. Campbell.
6. Cameron.
7. Canisteo.
8. Caton.
9. Cohocton.
10. Corning.
18. Howard.
19. Jasper.
20. Lindley.
21. Prattsburgh.
22. Pulteney.
23. Rathbone.
24. Savona.
25. Thurston.
26. Troupsburgh.
27. Tuscarora.

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11. Dansville.
12. Erwin.
13. Fremont.
14. Greenwood.
15. Hartsville.
16. Hornby.
17. Hornellsville.
28. Urbana.
29. Wayne.
30. Wayland.
31. West Union.
32. Wheeler.
33. Woodhull.

Electoral Census.—In accordance with the requirements of the first State Constitution, (of 1777,) there were taken between the close of the revolution and the revision of 1821, six several State censuses of electors, each of which was made the basis of a re-apportionment of Senatorial and Assembly districts.

The first census of electors for Steuben county was taken in the year 1801, when there were returned 181 electors owning freeholds worth over £100, 21 electors owning freeholds worth from £20 to £100; and 133 electors, not freeholders, renting tenements of the annual value of 40 shillings.

The next census returned, in 1807, 250 owning freeholds worth over £100; 23 worth over £20 and less than £100, and 647 renting tenements of the annual value of 40 shillings.

The census of 1814 returned 538 worth over £100; 46 worth between £20 and £100, and 1,247 renting freeholds at 40 shillings. That of 1821 returned 902 owning freeholds worth over £100; 104 between £20 and £100; 2,080 renting tenements at 40 shillings, and 955 free male inhabitants not owning freeholds or renting tenements, but who had paid taxes and had been enrolled in the militia of the State.

Slave Census.—The census returned in 1800, 22 slaves in Steuben county; in 1810, 87 slaves; in 1814, 76 slaves, in 1820, 46 slaves; in 1830, none.

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Comparative population of the several towns at different periods.

Times taken.	1800	1810	1814	1820	1825	1830
Addison	174	369	466	652	544	944
Avoca	------	------	------	------	------	------
Bath	452	1,036	1,625	2,578	2,422	3,387
Bradford	------	------	------	------	------	------
Cameron	------	------	------	------	553	924
Campbell	------	------	------	------	------	------
Canisteo	510	656	430	891	604	619
Caton	------	------	------	------	------	------
Cohocton	------	------	746	1,560	2,143	2,544
Corning	262	954	1,097	2,088	2,646	974
Dansville	------	666	526	1,565	1,489	1,726
Erwin	------	------	------	------	------	795
Fremont	------	------	------	------	------	------
Greenwood	------	------	------	------	------	899
Hartsville	------	------	------	------	------	------
Hornby	------	------	------	------	------	1,365
Hornellsville	------	------	------	------	834	1,572
Howard	------	------	366	1,140	1,703	2,464
Jasper	------	------	------	------	------	657
Lindley	------	------	------	------	------	------
Prattsburgh	------	------	615	1,377	1,865	2,402
Pulteney	132	1,038	799	1,162	1,501	1,724
Rathbone	------	------	------	------	------	------
Savona	------	------	------	------	------	------
Thurston	------	------	------	------	------	------
Troupsburgh	------	292	421	650	1,265	666
Tuscarora	------	------	------	------	------	------
Urbana	------	------	------	------	966	1,288
Wayland	------	------	------	------	------	------
Wayne	258	1,025	1,892	3,607	865	1,172
West Union	------	------	------	------	------	------
Wheeler	------	------	------	798	882	1,389
Woodhull	------	------	------	------	------	501
Total	1,788	6,036	8,983	18,068	20,282	28,012

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Comparative population of the several towns at different periods.
CONTINUED.

TIMES TAKEN.	1835	1840	1845	1850	1855	1860
Addison	1,388	1,920	2,432	3,721	3,156	1,715
Avoca	------	------	1,668	1,574	1,786	1,885
Bath	4,100	4,915	4,976	6,185	6,031	5,129
Bradford	------	1,547	1,715	2,010	1,285	1,211
Cameron	1,224	1,359	1,189	1,701	1,835	1,569
Campbell	842	852	957	1,175	1,542	1,622
Canisteo	780	941	1,170	2,030	1,985	2,337
Caton	------	797	1,051	1,214	1,585	1,550
Cohocton	2,855	2,965	2,656	1,993	2,242	2,535
Corning	1,619	1,674	2,521	4,372	6,334	5,925
Dansville	2,558	2,725	2,910	2,545	2,160	2,187
Erwin	1,089	785	1,033	1,435	1,819	1,859
Fremont	------	------	------	------	1,119	1,117
Greenwood	1,140	1,138	903	1,185	1,224	1,306
Hartsville	------	------	759	854	1,110	1,154
Hornby	972	1,048	1,294	1,314	1,410	1,291
Hornellsville	1,850	2,121	1,761	2,637	3,843	4,230
Howard	3,037	3,247	3,989	3,244	2,669	2,746
Jasper	984	1,187	1,384	1,749	1,768	1,850
Lindley	------	638	639	686	704	886
Prattsburgh	2,557	2,455	2,503	2,786	2,582	2,790
Pulteney	1,822	1,784	1,800	1,815	1,560	1,470
*Rathbone	------	------	------	------	------	1,388
†Savona	------	------	------	------	------	1,394
Thurston	------	------	576	726	925	1,100
Troupsburgh	876	1,171	1,498	1,754	1,979	2,196
†Tuscarora	------	------	------	------	------	1,566
Urbana	1,642	1,884	2,046	2,079	1,938	1,983
Wayland	------	------	------	2,067	2,651	2,874
Wayne	1,350	1,377	908	1,347	928	944
West Union	------	------	539	950	1,214	1,392
Wheeler	1,604	1,294	1,204	1,471	1,376	1,376
Woodhull	672	827	1,122	1,769	2,205	2,207
Total	34,961	40,651	46,203	58,388	62,965	66,689

* Erected in 1856. † Erected in 1860.

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The occupations of the inhabitants of Steuben county were, in 1855, classified as follows:

Agents	29	Dress makers	64
Agricultural imple't makers	2	Engineers	54
Apothecaries and druggists,	9	Expressmen	2
Artist	1	Farmers	9,696
Bakers	19	Fisherman	1
Bankers	9	Furnacemen	31
Barbers	19	Gardeners	18
Barkeepers	12	Gas fitter	1
Basket makers	36	Gate keepers	7
Blacksmiths	335	Glassmaker	1
Boat builders	16	Grocers	37
Boatmen and watermen	85	Gunsmiths	9
Boiler makers	4	Hardware dealers	8
Bookbinders	2	Hat and cap makers	9
Booksellers and stationers	4	Hotel keepers	43
Boot and shoe makers	264	Jewelers	9
Brewers and distillers	4	Joiners	28
Brick makers	7	Laborers	629
Brokers	5	Lawyers	51
Builders	2	Livery stable keepers	6
Butchers	28	Lumbermen and dealers	196
Cabinet makers and dealers,	66	Machinists	80
Carpenters	604	Mail agents	3
Carters and draymen	10	Marble dealers	2
Caulkers	3	Masons	154
Chandler and soap maker	1	Mechanics	19
Civil officers	20	Merchants	230
Clerks	155	Millers	79
Clergymen	104	Milliners	65
Clothiers	10	Music teachers	11
Cloth manufacturer	1	Ostlers	5
Coach and wagon makers	146	Painters and glaziers	74
Collector	1	Pattern makers	4
Confectioner	1	Pedlars	13
Contractor	1	Daguerreotypists	7
Cooks	2	Physicians	75
Coopers	68	Potter	1
Coppersmith	1	Printers	27
Dentists	9	Railroad employees	97

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Saddle & harness makers,..	55	Teachers.....	117
Saloon keepers.....	16	Teamsters.....	32
Sash and blind makers....	13	Telegraph operators	5
Sawers	317	Tinsmiths	28
Shingle makers	4	Tobacconists	7
Speculators	4	Tool makers	7
Stone and marble cutters,..	11	Trimmers	2
Students	45	Upholsterer	1
Surveyors	7	Watchmakers	5
Tailors	152	Weavers	9
Tanners and curriers.....	58	Wheelwrights.....	2

Dwelling houses.

Stone houses 12, value.....	$23,900
Brick houses 57, value.....	169,175
Framed houses 8,042, value.....	3,660,319

PART III.

Source of Land Title in Steuben county.

If we trace the tenure by which lands are held in this county, we shall discover their origin in "chivalric times," when might gave right, and men received "estates" in reward for military services rendered to some feudal leader or chief.

When the Roman empire began to decline, and became too feeble to support the most distant possessions, they fell into the possession of the Celtic nations, who to retain their conquests parcelled out the territory among the most powerful chiefs, and they distributed portions of it to their subordinates, even down to the common soldier, who had earned laurels in their predatory wars. The grants thus made were conditional, and called "feoda," "fiefs," "fees"—implying the receipt of a reward for past services, and security for those required for the future. It was an actual grant of the land to persons for military services performed and to be performed, and the bargain became void, and the land reverted to the first possessor, if the party refused to march, or fled from his chief in battle.

In those days the power of a military leader was the prerogative of a sovereign, and the rude plenty of his hospitality, and the gifts in his power to bestow were the only compensation expected.

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These were given in the most simple form, without deed, without writing, and the only ceremony observed in the grant was the "*feudal oath*" requiring of those who held the lands to acknowledge, and to recognize the donor, as the "*Seigneur*," or "liege lord," which gave rise to the maxim prevalent in Europe, "*Nulle terre sans Seigneur*," and to the gradual acknowledgment of the original proprietorship of all lands in the crown.

In Scotland, as late as the seventeenth century, many chiefs had no better evidence of title to their lands, than having possessed them from time immemorial; and, it is said, that, when they were afterwards required, by law, to exhibit their titles, they felt most indignant that they should be required to hold by a roll of parchment, what their ancestors had acquired by their swords, and held so long by no other tenure.

In 1687, it is related, that McIntosh obtained a crown charter for the lands of Glenroy, which were held by McDonald of Keppoth. McDonald, disdaining the sheepskin title to these lands, asserted his right by arms. In a desperate battle with McIntosh, he vanquished and took him prisoner, and then compelled him to renounce his acquired claim.

In England, the law recognizes the King as "the original proprietor of all lands in his kingdom," and "the true and only source of title." We have adopted the same principle, and applied it to our government. We hold it now to be a fundamental doctrine that all valid title to land is either derived from our own government or from the crown, and royal chartered governments established here before the revolution. We hold this doctrine to be of so broad an application, that of even the Indian reservation lands of which they still retain the occupancy, the fee is supposed to be in the State or government, and a patent issued by the government is held to be valid even though the Indian right and title has not been extinguished.

The grounds upon which European nations claimed the lands on this continent, were predicated upon "*the right of discovery;*" they paid not the slightest regard to the rights of the Indians, they treated them as mere barbarians and heathen, and to give form and appearance to their position they invoked the PAPAL POWER to recognize and to affirm their pretensions.

In the year 1420, Henry of Portugal, applied to the Pope for a sanction of this kind, and as this was the first application made, upon which all others were predicated, it is worthy of notice

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as exhibiting the principles which governed the nations of Europe at that time. Henry represented to the Pope "the pious and unwearied zeal with which he had exerted himself during twenty years, in discovering unknown countries, the wretched inhabitants of which were utter strangers to *true religion*, wandering in heathen darkness. He besought the holy father, to whom, 'as the Vicar of Christ, all the Kingdoms of the Earth were subject,' to confer on the crown of Portugal a right to all the countries possessed by infidels, which should be discovered by its subjects. He entreated him to enjoin all christian powers, under the highest penalties, not to molest Portugal, and to prohibit them from settling in any of the countries which the Portuguese should discover."

The response of Pope Eugene IV., was in character with the application. "He applauded the efforts of Portugal to discover and to subdue heathen lands—exhorted her citizens to proceed in that laudable career on which they had entered, and granted them an exclusive right to all the countries which they should discover from Cape Nao to the continent of India."

This Papal grant of territory to Portugal, appears to have been acknowledged as valid by the other European nations, and their subjects were prohibited from encroaching upon the rights of Portugal thus acquired, to foreign territories.

Spain was the next European power to embark in voyages of discovery, and to put in claims to foreign countries, founded upon the right of discovery; and, yet Spain was not satisfied with a right, thus founded, but applied for a higher and more unquestionable.

It is said, in history, that "Ferdinand and Isabella did not rest their title to the possession of the new discovered countries upon that of discovery alone; the example of Portugal, as well as the superstition of the age, made it necessary to obtain from the Roman Pontiff a grant of those territories which they wished to occupy. The Pope, as the Vicar, and representative of Jesus Christ, was supposed to have a right of dominion over all the Kingdoms of the Earth."

Alexander VI., the Pontiff to whom application was made, issued a decree (or Bull,) granting "in full right to Ferdinand and Isabella, all the countries inhabited by infidels, which they had discovered, or should discover, to the west of a line drawn from Pole to Pole, a hundred leagues west of the Azores."

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By virtue of this grant, Spain founded its right to all the regions discovered by her subjects, and as the grant was to Ferdinand and Isabella, they and their successors were held to be the *universal proprietors* of all the Spanish acquisitions in the New World. It is hence, a maxim of Spanish jurisprudence, that the title to all their American possessions, is vested in the crown; from it all grants of land flow, and to it they finally return.

During the reign of Henry VII., Cabot discovered that portion of North America, which is called Newfoundland, and sailed as far south as Virginia; but as these discoveries lay within the papal grant to the crown of Spain, Henry was induced to abandon them, for no person in that age, questioned the validity of a papal grant.

The breach between Henry VIII. and the Pope paved the way to those prerogatives of the crown, which had hitherto been deemed as incident to the papal See. Henry claimed for himself, as the chief executive of England, and as inherent to the crown, the appointment of all sub-executive officers, temporal and spiritual—the source of power and the original proprietorship of the soil. He, in fact, assumed to himself, as king, all the powers heretofore acknowledged as vested in the Pope. Among which, as we have seen, was that of disposing of foreign and heathen lands, to those who should venture upon their discovery.

The first grant of foreign territory emanating from the crown of England, was made by Queen Elizabeth, in 1578, to Sir Humphrey Gilbert of Compton. It was by charter, and authorised him "to discover and take possession of all remote and barbarous lands, unoccupied by any christian prince or people, and vested in him, his heirs and assigns, forever, the full right of property, in the soil of those countries, whereof he should take possession, and that all the lands thus granted, he shall hold of the crown of England, by homage, on payment of the fifth part of gold and silver ore found there."

But it was not until the reign of James I., that any permanent settlement was made in America by virtue of grants from the crown. James, by charter, in 1606, divided all North America lying north of the 34th degree of north latitude, into two parts, the one he called the "South Colony of Virginia, the other the North Colony." This charter contained also grants of land incident to discovery and settlement, which led to the settlement of Virginia. In 1609, James enlarged the grants contained in the

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charter of 1606, so as to comprise the most of North America. The Northern Colony was purchased in 1627, by the Puritans, by which they became vested in the title of all lands extending from "the Atlantic to the Southern Ocean."

In order to perfect their title, they applied to the Crown for a confirmation of it. Charles I., who was then on the throne, granted their request. He confirmed their right to the territory which they had purchased, and empowered them to settle upon, and to dispose of any of the lands therein contained. It was under this grant that New England was settled, and from it has emanated the title to lands in all that portion of our country.

The territory comprised within the limits of New York was first claimed by the Dutch by virtue of prior discovery, but they were evidently within the grant of James I. to the Northern Colony, and were always claimed by the English. In 1664 Charles II. by letters patent, made a grant to his brother, the Duke of York and Albany, of all the territory from "the St. Croix to the east side of Delaware bay."

In 1674 a treaty of peace was concluded between the Dutch and the English, by which "New Netherlands" was given up to the English. And the Duke of York, to remove all doubts as to his title to the territory, took out a new patent from the King, and sent Sir Edmund Andros over, as his agent or governor of New York, and of all his territories in these parts.

Thus it is seen that the European nations, in establishing colonies in America, assumed the *ultimate dominion* to be in themselves, and claimed the right to grant a title to the soil, subject only to the Indian occupancy. It is a fundamental principle of the English law, "that the King was the original proprietor of all the lands in his kingdom, and the true and only source of title." This proprietorship, during our colonial dependence, was delegated from time to time to the royal chartered governments established in America, and often to the governors sent over, who represented the King and exercised the authority vested in the Crown, as such representatives. When the United States became independent, all the rights of the English Crown and of the British Government passed to the Government of the United States, and to the governments of the several States; and we now acknowledge it as a settled and fundamental doctrine with us, that "all valid title to land within the *United States* is derived from the grant of our *own local governments*, or from that of the

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United States, or from the Crown of England, or royal chartered governments established here before the Revolution."

When this country was first discovered, it was found to be a wilderness, through which the Indians roamed in pursuit of game. Their occupancy of the country went no further than their passing over it in the chase, and remaining here and there for a season to fish and hunt. If occupancy gave title, it must be occupancy in point of fact, and not by inference. This question of title is discussed by Vattel, and the views he has expressed appear to be received as sound and reasonable. We have all, at least by common consent, acted in accordance with them. "The cultivation of the soil," says Vattel, "was an obligation imposed by nature upon men, and that the human race could not well subsist or greatly multiply, if rude tribes, which had not advanced from the hunter's state, were entitled to claim and to retain all the boundless forests through which they might wander. If such people will usurp more territory than they can subdue, they have no right to complain if a nation of cultivators put in a claim for a part."

When these States became independent of the Crown of England, the title of the Crown, to the territories within the respective States, passed to those States respectively. All the lands lying within the State of New York, not hitherto conveyed by charter or deed, *became vested in the State*—the State holding the fee, subject to the occupancy of the Indians. And the policy of the State has always been to guard and to respect the Indians' rights resulting from occupancy. No purchase of lands from the Indians was considered valid, without the consent of the State; and in every instance the State has guarded them in the occupancy and enjoyment of their possessions, and wherever the State has conveyed the fee, it was left to the purchaser to buy out and to extinguish the Indians' claim as he and they could best agree.

Under the old grant of James I. to the Council of Plymouth, *Massachusetts* claimed title to a large portion of the State of New York, then in possession of the native Indians. The State of New York, to settle this claim, ceded to Massachusetts the right of pre-emption to nearly 10,000 square miles, retaining the sovereignty and jurisdiction to herself.

The lands granted to Massachusetts consisted of two parts, the one of 230,400 acres between the rivers Owego and Chenango, comprising some ten or twelve townships in Broome and Tioga

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The other tract comprehended all that part of the State lying west of a line beginning at the mouth of the Great Sodus bay on Lake Ontario, and running thence southerly to the north line of Pennsylvania, excepting therefrom one mile on the east of the Niagara river and the islands in said river. This tract consisted of 6,144,000 acres, and comprised all the territory of the county of Ontario, part of Wayne, Yates, Steuben, and all the counties lying west of them. This cession bears date December 16, 1786.

On the 1st of April, 1788, Oliver Phelps and Nathaniel Gorham purchased of Massachusetts, its pre-emptive right to the principal tract, stipulating with the State of Massachusetts that they would proceed to purchase and extinguish the Indian title thereto, as stipulated by Massachusetts in its compact with the State of New York. For this end the Rev. Samuel Kirkland, a missionary among the Six Nations of Indians, was appointed a Commissioner on the part of Massachusetts to superintend and approve of the purchase of the Indian title.

In the summer of 1788, Oliver Phelps proceeded to Canandaigua, for the purpose of treating with the Indians, and of exploring and surveying this extensive tract; by the assistance of Mr. Kirkland, the chiefs and warriors of the Six Nations were assembled, and Mr. Phelps met them in conference near the Canandaigua lake. After a negotiation of two days, and after every preliminary was about being arranged, the celebrated Red Jacket arose, drawing his blanket around him, and surveying the assemblage, he addressed them in a language and style peculiar to himself. He represented to them the effects of giving the pale faces any further foothold within their territories; depicted to them their former simplicity and happiness, and the wrongs they had sustained from the whites, until his Indian auditors were roused and excited almost to vengeance. At this critical juncture, another celebrated chief, Farmers Brother, interposed, and with a cautious, soothing address, moderated their fury, persuaded them to adjourn, and before they had re-assembled he induced them to take a more favorable view of the question before them. A purchase was effected, and for the sum of *two thousand one hundred pounds*, the sachems and warriors of the Six Nations conveyed to Phelps and Gorham all the territory within the counties of Ontario, Yates, Steuben, Livingston, and parts of Wayne, Monroe, Genesee and Allegany.

After this purchase, Mr. Phelps surveyed these lands into

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tracts running north and south, called ranges, and divided the ranges into townships of six miles square. Each of these ranges and townships were designated by numbers, commencing at the southeast corner (82d milestone, west of the northeast corner of Pennsylvania) of the tract, which is now the southeast corner of the county of Steuben.

Phelps and Gorham being unable to extinguish the Indian title to the western portion of their purchase, as stipulated with Massachusetts, surrendered to that State that part to which the Indian title was unextinguished, in consideration of which the State relinquished two-thirds of the contract price. In 1796, Massachusetts sold these lands to Robert Morris, who extinguished the Indian title thereto, sold off some, and mortgaged the residue to "Wilhem Willink," of Amsterdam, and eleven associates, denominated the "Holland Land Company." This mortgage was foreclosed, and the lands bought in by said company. Thus the "Holland Land Company" acquired a full title to all the lands surrendered by Phelps and Gorham to Massachusetts, and lying west of the Phelps and Gorham purchase of the Indians.

Phelps and Gorham, after surveying their purchase into tracts, as before described, sold large portions thereof to speculators and settlers. In 1790, they sold the balance (1,204,000 acres) to Robert Morris, for 8d. per acre. The deed of conveyance to Robert Morris, bears date 17th November, 1790, and is executed by Nathaniel Gorham and Rebecca his wife, and Oliver Phelps and Mary his wife. Said deed contains covenants against incumbrances and warranty of title.

Previous to the year 1798, aliens were incapable of purchasing and holding real estate within the State of New York. Yet, through their agents, they managed to make large investments in lands in various parts of the State. In 1792, Charles Williamson, an agent of Sir William Pulteney, made several purchases in various parts of the State, and among other tracts, bought of Robert Morris the lands conveyed to him by Phelps and Gorham. The deed to Charles Williamson bears date 11th April, 1792.

Charles Williamson is represented to have been a scientific man, of liberal and extended views. He made the first settlement in Bath, of Steuben county, in 1792, a short time previous to, or about the time of, his purchase of the lands above described.

By the act of April 2, 1798, aliens were enabled to purchase

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and hold real estate within this State, and to convey the same, but were prohibited from making any reservations of rent or service in any grant, devise or conveyance whatever. In accordance with the provisions of this act, Charles Williamson and Abigail his wife, conveyed the above lands to Sir William Pulteney, on the 21st of October, 1801.

Sir William Pulteney died in 1805, intestate, and his estate descended to his only child, Henrietta Laura Pulteney, as heir-at-law.

Henrietta Laura Pulteney died in 1808, intestate, leaving Sir John Lawther Johnstone, her cousin and heir-at-law, to whom her estate descended. Sir John Lawther Johnstone died in 1811, and by will left all his lands in America to Ernest Augustus, Duke of Cumberland, Charles Herbert Pierrepont, David Cathcart and Masterton Ure, in trust, to sell the same as speedily as possible, and to invest the same as therein directed. He authorized them to fill any vacancies that might occur; also "authorized three to act when there were four, and two to act when there were but three."

It appears from the records of the State that the question of title to these lands has been a subject of legislation, and also of judicial investigation. On the 26th of January, 1821, an act was passed entitled "An act to perpetuate certain testimony respecting the title of the Pulteney estate in this State." According to the provisions of this act, Robert Troup, Joseph Fellows and John Greig were examined before Brown Whiting, a Master-in-Chancery, as to the seizin, descent and title of said estate, and an order was entered on the 28th of November, 1821, to the end that said depositions do, in the opinion of the Chancellor, furnish good prima facie evidence of the facts therein set forth; and it was ordered that the depositions be filed in the office of the Register of the Court of Chancery, "there to remain as matters of perpetual record."

It would appear from the above that the title to the lands, comprising the Pulteney estate, was found to be valid, in the trustees named in the will of Sir John Lawther Johnstone, and in their successors and assigns forever.

On the 1st of March, 1819, Charles Herbert Pierrepont relinquished his trust, and conveyed to his co-trustees all his interest in the estate; and on the 20th of November, 1827, these trustees, under an order of the court of Chancery, appointed John Gordon

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a trustee in the place of Charles Herbert Pierrepont, and conveyed to him the estate as a co-trustee. The present acting trustees are now Ernest Augustus, Duke of Cumberland, Masterton Ure, and John Gordon.

On the 17th of August, 1830, these trustees appointed Robert Troup "their attorney and agent for managing the estate, and in case of his death or disability to act, they nominated and appointed Joseph Fellows to act as their attorney and agent." By virtue of this appointment, and the death of Robert Troup, Joseph Fellows is now the legally authorized agent of the said trustees, to sell and convey said lands according to the powers therein specified and granted.

The agent of the Pulteney estate has proceeded to sell these lands with all convenient speed, as directed by the will of Sir John Lawther Johnstone, and has conveyed by deeds, and contracted to convey all of the original purchase, with the exception of about 100,000 acres, which is offered at a low price, to those who may see fit to buy.

As it respects the lands belonging to the Pulteney estate within the county of Steuben, unoccupied and unsold fifty years ago, we have shown how rapidly they have been taken up, in detailing the settlement of the county. It is sufficient here to note that the first settlement was made in 1790, and at the present time the county contains over 60,000 inhabitants, and but small portions of the Pulteney estate, within the county, are now unsold.

PART IV.

CLIMATE.

The climate of a district of country determines the character of its agricultural productions. It is not altogether latitude, elevation or depression, that makes the climate cold or warm, but all these, connected with local meteorological data.

It is a philosophical fact that all the forces incident to the earth itself, tend to bring matter to a state of rest, and can only be disturbed by the solar emanation; that the earth revolves around the sun through an elliptic orbit, of which the sun is the *foci;* that the earth is nearer the sun at one season of the year than another; that the time of approximation is constantly changing, but so gradual as to produce no visible effect;

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that the spherical condition of the earth's surface causes an obliquity in the sun's rays, except where it is exactly vertical; that the intensity of the sun's beams are greatest when vertical, consequently greatest within the tropics, and gradually diminish towards the poles. The intensity of heat, therefore, is in the ratio of the sum of all the perpendicular rays, together with the length of time from sunrise to sunset. Thus we can calculate the relative amount of heat at different latitudes at different seasons of the year.

If the days were of equal length through every latitude of the earth's surface, the accumulation of heat would become too great at the equator, and too little in high northern and southern latitudes for vegetable production. It is an important fact, in comparing the agricultural capacity of different latitudes, that the obliquity of the sun's rays is greater, but in summer the days are longer, and are sufficiently long to compensate therefor. During the summer season, therefore, there is more heat received at Detroit than at Galveston, but in winter it is the reverse. The nearer we approximate the equator the less will be the variation in the days and seasons. In the more northern latitudes the earth, in summer, is receiving the greatest amount of heat, as autumn approaches the quantity decreases, until the radiation through the night exceeds the heat received through the day; then the temperature begins to decline until midwinter, when intensity of cold pervades the earth's surface.

Another fact has been observed, that the radiation of heat from the earth's surface differs in different places and at different times; where the air is in a state to be highly permeable to heat a greater difference is observed; also where the inter-radiation between hills will prevent somewhat a diminution of temperature.

The elevation of a district of country above tide water affects its climate. This is in accordance with philosophical observation. The atmosphere is more dense at the earth's surface, and the diminution in density is greater as we ascend. An equal weight of air at all distances from the earth will contain an equal amount of heat, and when the air is more dense, the heat will be equally dense, and more rare in the ratio of the rarity of the air. This is invariably the case where other causes do not combine to alter the result. Sometimes the heat evolved in the condensation of clouds will change the temperature of the atmosphere. Sometimes tidal currents from south to north, and ranges of hills and

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mountains will affect the temperature. The south side of a hill, where the sun's rays fall upon it more direct, will be much warmer than the north side. Hills and valleys obstructing or admitting southern currents of air will vary the temperature. Although different elevations, from 335 to 271 feet, have been shown to reduce the temperature one degree, yet local causes materially change the result.

The vapor that ascends in the torrid zone passing to the more cool regions becomes condensed and falls in rain, producing what is called the rainy season in the regions bordering on the tropics. This, from local causes, is varied by the configuration of the country. Upon our western coast it reaches to California and Oregon, while on the eastern, it scarcely touches our southern line. The currents of the ocean cause marked change of temperature. Upon our eastern shore, runs the GULF STREAM, which carries the warm water of the equator northward towards Norway, modifying the climate of the Atlantic coast to the point where it turns eastward towards Europe, making Northern Europe far more temperate than Labrador or Greenland. Hence, the boundary of the region, within which the average temperature is below the freezing point, is at the southern extremity of Hudson's Bay, 53° of north latitude in America, and at 64° of north latitude of the western coast of Europe, making a difference of 9° of latitude between the coast of Europe and America.

The physical geography of a country has a marked effect upon its climate. The curvature of the coast of the United States towards England, throws, as we have seen, the warm waters of the gulf stream, eastward to Europe. The mountain ranges, and intermediate valleys, as they shut off or allow free access for northern or southern currents of air; the presence of large bodies of water, as lakes, rivers, or oceans, tend to change the climate. The prevailing winds, whether they blow over water or land, from a warm latitude or cold, from the ocean or from our great lakes, in a remarkable degree affect the climate. The prevailing winds of our section of the State are from the west, north-west, and south-west, but every rain that occurs, and every change of temperature, tends to disturb their regularity and to change them to the east, south, and north-east.

The valley of the Mississippi, extending from the Gulf of Mexico to near the fiftieth degree of north latitude, and continued to the Northern Ocean by the valleys of the Red and Mackenzie's

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rivers, giving a free passage for prevailing south winds, makes the temperature most mild far northward, and gives to our prevailing south-west winds a genial warmth, and a higher temperature. This ensures to the valley of the Red river of the north, and to the British possessions westward, a belt of climate far more temperate than is found eastward. Thus, the mean temperature of sixty degrees for the year, on the Atlantic coast, is at the mouth of the Chesapeake Bay, 37° north latitude, and in Nebraska, is 42° north latitude. The summer temperature of an average of 70° on the Atlantic coast, is at Long Island 41° north latitude; at Lake Michigan is at 43°, and at the Mississippi river 46° north latitude; further west, at the Rocky Mountains, it is at 49°. From the above facts, it is safe to infer that in our county, the south-west, and west winds, are, next to the south, the more temperate, and materially affect the temperature of our climate.

The climate of our county is peculiar, in respect to the great range of temperature for the year, as also for the month, and in isolated variations, the horary variation is less than the monthly, yet greater than in some other places of the same mean temperature.

We have quite warm summers, and cold winters, giving to our location a capacity for vegetable growths of products incident to all climates from semi-tropical to extreme northern. They are produced in every instance of sudden growth, and quick maturity, accommodating themselves to the length of our summers.

In spring, and autumn, the humidity and rain control somewhat our climate, making the spring months cold, and inducing early frosts in autumn.

The character of our production, as a whole, is far greater in range, than many localities. We can grow all the grasses, cereals, and succulent vegetables, together with the grape, peach, and tobacco; we cannot grow them all unfailingly; we may produce them in great perfection for one year, and in the next fail altogether, owing to the great variation of the temperature of our seasons.

The mean temperature at Prattsburgh, in Steuben county, for the year was 47°: for January 26°, February 25°, March 33°, April 44.8°, May 54.1°, June 60.5°, July 67.5°, August 68°, September 60°, October 47°, November 37.1°, December 28°.

From the above observations, it will be seen that the mean

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temperature for the Spring was 43.9°, for the Summer 65.4°, for the Autumn, 48.4°, the Winter 26.3°.

From the above data may be inferred the climatic adaptation of our locality for the production of the several cereals, grasses, and vegetables.

For the growth and maturity of wheat, the mean summer temperature is required to range from 60° to 69°. A lower range is unfavorable for ripening the crop, will induce rust and shrinkage. One fact is noticeable in the growth and maturity of this crop, that the higher the temperature the earlier the crop will ripen, and the lower mean temperature will require a longer term for it to mature. At the extreme south the crop sown in November will ripen in May. In Virginia, in June. In England it takes a whole year; so with us in the higher localities of Steuben county, we may sow in August and reap in August. In the lower and warmer valleys we may defer seeding until September, and harvest the latter part of July.

The limit of temperature beyond which wheat will not grow, but will ripen is 70°, and the lowest range to ripen is 60°; showing a range of but 10°, determining the period at which the crop will mature.

We hear much said of the "*winter killing* of wheat." This is owing more to the alternations of temperature, from warm to cold, than to the extreme cold that destroys it, by exposure. Where the winter climate suspends vegetation almost entirely, and keeps it dormant until spring opens, the crop succeeds to maturity. It makes no difference as to the length of time, for the crop is preserved as perfectly under the snow for five months in our county, as it is for one month in warmer latitudes.

The winter killing of the wheat crop is owing more to defective preparation of the soil than to the severity of the climate; a deep, rich soil, will ensure a large growth, where a poor shallow soil will invariably fail. Where the soil is hard and impermeable to water and air, it will become water-logged, and the temperature of the soil cannot be raised, where the water stands, but in winter the frosts will mechanically throw out the roots and destroy the crop. A soil of this description is unfavorable to vegetation at all seasons of the year.

He who would grow wheat successfully, must by underdraining, change the underground climate of his soil, so as to admit the air and warm rains into it, giving the roots of plants free

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access to food and expansion. It is only when deep draining and deep trenching make the soil porous, and permeable to air and heat, that the effect on vegetation will render it productive.

In England and Scotland, where a careful cultivation has rendered the soil rich and deep, the yield of wheat is larger than in our county. In Fifeshire, Scotland, it is 25 bushels per acre; in Yorkshire, England, 27; in Lincolnshire, 26; in Herefordshire, 25; in Kent, 28. In Steuben county, the average will not exceed 12 bushels; while in some of the towns it will fall to 7. The average crop is the surest test of the culture, and sometimes demonstrates problems we regret to consider.

The wheat midge has impaired the wheat crop in the county, particularly the winter wheat; spring wheat is largely grown with good success. In the town of Bath is raised some fair winter wheat. In Avoca, Prattsburgh, Hornby, Howard and Woodhull, spring wheat continues to be a remunerative crop, but in some other towns the average is too small to pay.

The hill lands produce the heaviest berry, and sometimes the fullest crop; in the valleys it is more liable to rust and to shrink. In the latter localities they sometimes have the advantage of the earlier seeding of spring wheat, and an earlier maturity, but generally the hill soils ensure the best crops.

Where the soil is favorable, BARLEY can be grown in Steuben county with fair success. Barley, though a native of a warm climate, yielding better in warm seasons, still its flexibility is so remarkable that it will grow as far north as 72 deg., and upon elevations far above the tide water. To produce a good crop of barley the land should be rich, mellow and warm—a deep soil, that will not suffer from drouth; upon such soil the crop will grow rank and be well filled: a poorer soil will shorten the straw and the yield. In the town of Prattsburgh fine crops are raised, the aggregate exceeding twelve thousand bushels. In Bath, though more land is sown, the yield is not as large. In Howard the product equals Prattsburgh per acre, also in Pulteney, Wayland and Wayne. Greenwood falls far below any other town in the aggregate or average, being as low as eight bushels per acre.

Barley will ripen quickly at a range of temperature of 65° to 70°, and with us is matured in July.

The last summer was not as favorable for barley as usual; the spring was cold and wet, the seeding was delayed, and the cold

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temperature of July retarded its maturity until August, and some of the later sown until September. This was unusual.

Oats is an important crop, affording nourishment to live stock, and, in some countries, an important aliment for man. It is easily raised, and the aggregate of bushels exceeds that of any other. In Steuben county it is more than 800,000 bushels. This crop will grow equally upon our highest hills, and in the lowest valleys. It is an exhausting crop. Upon good rich soil it will produce fifty bushels per acre; upon poor soil as low as ten bushels. By continued plowing and raising oats on the same soil, from year to year, the farmer may readily exhaust its productive capacity, until its yield will not pay for further crops. The average high price for oats has induced many of our farmers thus to pocket the fertility of their farms, and to reap thereafter poor crops. Probably no crop will pay better for manure and good culture, and no farmer ensures prosperity and wealth who does not pursue this system of production. Oats are raised in all the towns of our county—more in Bath, Prattsburgh, Hornby. In the latter town the average is the greatest. Howard produces fine crops, also Wheeler, Corning and Caton. Thurston produces the least, and Cameron the next.

Rye is a hardy crop, will grow in any climate where the summer range of temperature is over 60 deg. It does best on dry soil. Should be sown in Steuben county the first week in September on the hills, and the latter part of September in the valleys, so as to ensure a good rooting before winter. It is not extensively cultivated because its importance is not fully appreciated. In Bath, Bradford, Urbana and Wayland the largest crops are produced. In Hartsville the least. The average, however, is far below what it ought to be, if the crop was cultivated properly. Many sow it just before winter, and are satisfied with a yield of eight or ten bushels per acre. If it is put in rich, mellow soil, in September, the product will be 25 to 30 bushels.

BUCKWHEAT.

Buckwheat is quite an important crop, and is grown largely in all the towns of the county; the aggregate reaching to near 100,000 bushels. It is quite a convenient crop to cultivate as a means to clean weedy and foul land. It grows readily and yields largely where the climate is neither too hot or dry, or too frosty. The slightest frost will kill it; the highest temperature will blast

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it. Large crops are raised upon the highest hills of our county, and whenever the frosts are kept back until October, a full yield is produced. In the town of Bath the largest crops are raised. The hill lands of that town being in soil and temperature peculiarly adapted to its production. In the town of Hornby the largest average is realized. Jasper, Addison, Bradford, Woodhull and Howard produce good crops. Caton stands next to Hornby in yield per acre. The peculiar atmosphere of the lands more elevated, presents a better adaptation to its maturity than the lower valleys, where a larger range of temperature prevails. The opinion prevails, too generally, that when the soil is too poor to produce the other crops it is good enough for buckwheat, and a succession of crops are put in until the yield is reduced to five or six bushels per acre. In good soil it will produce twenty-five to thirty.

INDIAN CORN.

The climate of Steuben county is somewhat diversified as to its adaptation for the growth of Indian corn. In some parts of the same town it is quite subordinate to other staples. Upon the highest hills and the more elevated parts of the county, the single element of sufficient heat for a few weeks is wanting, and so precise and imperative is the requirement in this respect, that no skill can secure a full mature crop. On some of the southern slopes, and in the valleys, where a mean temperature of 68 deg. exists for July, August and the forepart of September, good crops are produced. Through the valley of the Tioga, in Lindley, of the Canisteo, in Erwin, of the Conhocton, in Avoca, Bath, Campbell and Corning, the climatic features are favorable to its production. In Pleasant Valley, in Urbana, so far as climate is concerned, corn ranks first in its capacity for production. The valleys of several creeks preserve a temperature through summer sufficient for its maturity, though in some instances the measure of heat being equal to, yet the period of growth and maturity is somewhat shortened. In some instances the crop does not begin to grow until near the middle of June, and will ripen in August.

The crop requires a high amount of heat for the day to ensure its development and maturity, particularly for the production of saccharine matter and grain. This grade of temperature is absolutely necessary, for the crop is less elastic, in this respect, than any other. Where the temperature is sufficient, and the rains adequate, it is certain to be productive.

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Good crops of corn are grown in Pleasant Valley, in the valley of the Conhocton, of the Canisteo, of Mud creek and Mead's creek; but on the intervening highlands it is an uncertain crop. While the temperature through July and August may range at an average of 68 deg. to 70 deg. in these valleys, upon the highlands it will fall to 65 deg. and 67 deg.—too low to perfect and mature the crop.

The corn crop in the county has reached 300,000 bushels per year, showing it to be one of the most important, except wheat. The town of Bath produces the largest aggregate; Lindley, Erwin and Hornby the largest average per acre. Campbell, Addison, Avoca, Corning and Cohocton yield fair crops. In some of the other towns certain localities favor its production, but other grains are more certain, and the farmer who studies the adaptation of his soil and temperature will prefer their cultivation.

The yellow varieties are generally grown, as they combine the quality of early maturity with productiveness; among these, the *eight-rowed* is preferred for its prolific and hardy qualities and more certain maturity. The culture of corn is deemed by our farmers the best preparation for enriching and cleaning the land for wheat and barley, and afterwards to be profitably seeded. It is absolutely necessary to produce corn, to have the land of fine tilth, free from grass and weeds, loose, friable and rich. This condition of soil will ensure full after crops of wheat, barley and grass.

Pumpkins are generally planted with corn with profit to both crops. The leaves of the vine protect the corn roots from the heat of the sun, and the pumpkins constitute an excellent article of food for cattle and swine. Such is the enormous growth of this crop, when the season is favorable, that several wagon loads have been produced per acre.

The northern limit of the production of corn in our country, is deserving of notice, as showing the elasticity of the plant in adapting itself to different latitudes, and in compressing the period of its growth. In New Brunswick it is cultivated in latitude 46°, in Maine 45°, in New Hampshire 44°, at Quebec 47½°; through the elevated lands of New York it is limited to 44°, except in river valleys; westward to the Mississippi the line is 45°, and beyond, far towards the Rocky Mountains, it ranges from 50° to 47½°, and beyond the mountains it rises to 49°.

Vertical climate has great effect upon the range of its produc-

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tion, as is evidenced by the foregoing data. The farmers of Steuben county have annual demonstration of it; elevated farms are never certain to produce good crops, while valley lands scarcely ever fail, though they may be in sight of each other.

THE GRAPE.

Until within a few years, the cultivation of the grape received no attention in our county. In some gardens a vine or two were permitted to flourish, as best they could, without culture or attention. A few wild varieties festooned the forests in favored localities, producing sour, acrid fruit, the result, as was supposed, of an unfavorable climate. It was not until lately that the fact was noticed that the temperature is not a precise guide in its cultivation, because a favorable temperature connected with extreme humidity, or with alternate periods of excessive dry and excessive saturation, influence unfavorably its growth and production. In this is constituted the difference between the climatic adaptation of Europe and America, and causes the difference between the grapes of the two countries, the former possessing more saccharine matter than the latter.

The district of Steuben county particularly adapted to the cultivation of the vine, is in the town of Urbana, at the south head of Crooked lake, comprising an area of six or eight miles in length to a quarter of a mile in breadth. The hillsides slope abruptly to the southwest—the soil is loose, dry and open, permeable to air and moisture. The surface receives the sun's rays vertically, and a warmth is generated to a favorable temperature, while excessive rains pass away, leaving the soil dry, the water running off from the surface, or is absorbed and passes through the subsoil to the underlying rocks or strata of gravel.

The climate of this particular locality is warm—lying under the shelter of the surrounding hills, it is screened from the cold winds and storms to which the surrounding country is exposed. In the summer season the vineyards will have a mean temperature of from 68° to 70°, and of the whole period of growth of about 59° to 60°.

These vineyards combine all the necessary elements of mean temperature, and freedom from cold winds, which, at critical seasons, render the cultivation of the grape impossible. There is no place similar to it in all respects, except Naples, at the southern extremity of Canandaigua lake.

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The vineyards in the town of Urbana comprise some 200 acres, and their products have been far greater than was anticipated; so much so, that a "Wine company" has been organized for the manufacture of wine and brandy, and is in successful operation. During the year 1861, the company made 5,600 gallons of wine and 800 gallons of brandy. Grapes raised was about 40,000 pounds.

The vine is cultivated to some extent in the valley of the Chemung, at and below Corning, where the Isabella and the Catawba have been produced in great perfection, but the climate here is not as favorable as at Hammondsport; the periodical morning fogs, peculiar to this valley, affect the grape unfavorably.

At Bath some grapes are produced, when the season is of the required temperature. We have seen some fine Sweet-water grapes in the garden of Judge McMaster—the clusters large, compact, and the fruit fair and luscious.

In the town of Pulteney, upon the western banks of Crooked lake, are several vineyards worthy of notice, of which those of Mr. Prentice are the largest and the most productive. Grapes raised in 1861, 5,400 lbs.

The products of all these vineyards are marketed in New York, Boston, Buffalo, and other cities, for table use; and for wine, at the Pleasant Valley Wine Company establishment. The former grades command from twelve to eighteen cents per pound; the latter from six to eight cents. At these prices, the business is estimated very profitable, and has caused the hillsides, deemed heretofore inaccessible to cultivation, and worth only $10 per acre, to be sought after and to command from $50 to $100.

TOBACCO.

This weed is not much cultivated in the county, though its requirement of climate is the same as that for Indian corn. The climate of Pleasant Valley, of the valley of the Conhocton, the Canisteo, the Tioga and Chemung, is adapted to its cultivation. In either of these valleys a mean temperature for summer ranges within the limits of the cultivation of tobacco, which is the line of 63° mean for July, and upwards to 65°.

There is some tobacco grown in these valleys, but the cultivation has not been much extended—the farmer preferring to produce corn, barley, oats, wheat, rye and potatoes.

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GRASSES.

The county of Steuben is particularly adapted to the production of grasses. The range of temperature throughout the year, the amount of rain and general humidity favor their growth. Many grasses appear to be natural to its soil, and intermix with the cultivated varieties. Though the grass crop chiefly depends upon the temperature and humidity of the atmosphere, some soils are found to make amends for want of atmospheric moisture.

There is a general want of attention in our county to the improvement of meadows and pasture grounds; there is but little study bestowed upon the nature and habits of grasses, or notice of their relative merits; which of them will render the land more productive, or furnish the largest returns. Some grasses will form a thick heavy turf, shielding the soil from the effects of severe cold and heat, affording rich pasture and large crops of hay. Others will never thicken to the form of a turf, but are valuable for forage purposes and for alternating with grain.

There are but few places in the county where the temperature falls so low, or the cold is so greatly extended, as to destroy the turf grasses; but in clay soils, and unprotected by snow, a continuance of cold as low as 20° below zero, will generally destroy them. Upon wet clay soil clover is sure to be winter killed, the frost heaving the roots entirely out of the ground.

The principal grasses cultivated in the county are herds grass (timothy,) orchard grass, red top and red clover. Red clover is generally sown with timothy for permanent laying down, but in a year or two is displaced by the white clover, blue grass, and other native varieties that come in spontaneously, and which form the richest sod and the sweetest pastures.

The "sweet-scented vernal grass" grows vigorously amid our hills and valleys, producing early pasture of fine flavor, making the richest and sweetest milk.

"Red top," or "Foul meadow grass," is found in the lower and wet meadows and pastures. It will grow wherever water irrigates the soil, will form a compact sod and yield sweet hay and pasture. No grass is better adapted to the climate, or will produce more abundantly where it obtains lodgment.

In low, swampy lands, where other varieties will scarcely vegetate, is found the "Floating fescue grass," the "Meadow fox-tail grass," the "Meadow soft grass"—these produce good hay and pasture.

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For dairy and grazing purposes, old pasture grounds are more highly prized than those newly laid down. They contain a greater variety of the finer native varieties, some of which start early, others later, giving a succession of fresh feed, and of a quality more nutritious and abundant.

The "trefoils" are deemed good forage plants—the clover more so than the others, as it is easily grown in all parts of the county where the soil is not too wet and clayey. It is one of the best alternating crops with grain, as it leaves the soil rich, loose and permeable to the passage of air and water into the subsoil. The white clover is indigenous to our hills, and produces fine pasture for dairy purposes.

The soil of the county is sufficiently retentive to do away with the necessity of resorting to the "arenaceous" grasses, which are found to be so valuable in some parts of Europe and in the south, where the surface is too *sandy* for other varieties. Seeds of some of these grasses were distributed through the Patent Office among our farmers, and were sown more for the novelty of the thing than the utility. In one instance, the reception of a package of "Spurgelia" was deemed a pretty good joke, as it induced one of our farmers to cultivate "Devil's guts," under a specious cognomen.

The grasses of the county exceed in value any other crop produced annually within its borders. Though neglected and scarcely noticed, as a portion of our yearly products, the aggregate is far beyond that of any other upon which is bestowed particular care and attention. In the year 1855 the number of acres in pasture was 102,825, and the 76,401 acres in meadow produced about 60,000 tons of hay. Up to 1861, the increase in pasture has been 15,250 acres; in meadow, 21,475 acres, and the product of hay 31,000 tons—more than fifty per cent.

NOXIOUS WEEDS.

These weeds deserve the attention of the agriculturist, though for years they have been suffered to increase, uncared for, until some of them occupy, exclusively, large portions of the land. The most injurious are the Canada thistle, pigeon weed, cockle, chess, wild mustard, Mayweed, daisy and dock. Some smaller weeds, yet injurious, are the sorrel, chickenweed, St. Johnswort, groundsell, shepard's purse, mullen and burdock.

The widest spread weed, and most injurious to crops, is the

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Canada thistle (circium arvense.) Its extirpation seems to have, as yet, failed from frequent and deep plowings and repeated mowings, because such is the vitality of its roots, the more they are broken the greater number of shoots they will send up, and the more the plant is mowed the further the roots and branches will extend. The difficulty attending its destruction arises more from the neglect of some *shiftless farmers*, whose inattention will always secure its existence, than from the total failure of the means resorted to for its destruction. These *shiftless farmers*, if they can only secure binding gloves, or get their crops in *unbound*, will let thistles and grain grow in equal proportions, until it is difficult to decide which is the *intended* crop; and, as a consequence, the whole neighborhood is seeded with this noxious weed. The CAREFUL farmer, who cuts and destroys the growing shoots, has blown upon his fields seeds, for succeeding ones, from the fields of the *shiftless*.

Experience has demonstrated that a single plowing and hoeing will rather increase the Canada thistle than destroy it; its immense power of propagation by its roots, enables it to throw up additional shoots whenever severed by the plow or hoe, so the operation really cultivates and stimulates their growth. As to mowing, it will destroy those plants that have thrown up flower stalks, but will not those which have not. A continued mowing, close to the ground, for a succession of years, will in the end destroy them.

It is noticeable that, in smooth meadows, where the grass is annually cut by a mowing machine, the thistle will disappear altogether. In rough lands, mowing, salt, and sheep, are sure to eradicate it.

Lithospermum, "pigeon weed," is highly injurious to other crops; it is a *gross-feeder*, appropriating to itself every productive capacity of the soil until it obtains full possession thereof. This weed, though not known in some of the towns of our county, yet in some, is in a fair way to exterminate the wheat crops unless itself is exterminated. Its extermination has been attempted by mowing without effect. Pulling, while in blossom, may do it, if thoroughly persisted in. Continued fall plowing, succeeded by spring crops will succeed, as the seed germinates in the autumn, and the spring cultivation will destroy the young plant. Although the plant is worthless and a nuisance, the seed will afford more than half a gallon of oil per bushel.

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"*Rose Campion*," or cockle, grows to the height of two or three feet, bears quite an ornamental flower and produces black strong seeds, which contain white flour. Its chief injury is to discolor the flour of grain, with which it is ground. It can readily be exterminated by being pulled up.

Cheat, or chess, supposed by some to be a hybrid of the wheat crop, by means of some vegetable process, is a hardy plant, and generally makes its appearance in places where the wheat crop is frost-killed or injured. The seed of chess is said to be noxious to animals, if eaten, and the careful farmer will see that it is fully eradicated. Reference is made to this weed in Matt. 13, 25, in "the parable of the tares."

"*Wild Mustard*," though it will produce oil from its seed is a noxious weed; where it obtains lodgment it is difficult to be eradicated. The seed is very tenacious of vitality; it will lie buried for years, and when brought to the surface, will vegetate. The surest way to destroy it is to pull it up when in bloom, or to plow it under. It is not generally seen throughout our county.

"*Mayweed*" makes its appearance where the ground has been trodden down by cattle, and consequently is commonly in barnyards, along cow paths, and road sides. It will sometimes invade wheat fields and injure the crop. It is easily exterminated by mowing, or weeding, which should be annually attended to.

The Ox-eye daisy is spreading over the farms, in some towns, with fearful rapidity; it is very injurious to the crops of grass or grain, and the only way to exterminate it is thorough and repeated plowings, by means of which the entire plant is buried beneath the furrow and not permitted to vegetate.

Dock, though not as injurious as some other weeds, is seen scattered over the farms of careless agriculturists. In a wet time the roots are easily pulled up, or if it be grubbed below the surface it will cease to vegetate.

Burdock may be destroyed in the same way; its burrs are injurious to the wool grower, impairing the value of the fleeces, as also choking the growth of crops and grasses.

The other smaller weeds enumerated, are found more or less throughout the county, as evidence of careless farming, all of them being easily destroyed by careful tillage.

The prevalence of weeds upon our cultivated lands evidences careless farming, and that the occupant is uncultivated in habit and mind; for it is not possible for a man, refined by cultivation,

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to be content to let his possessions exhibit a careless and an *uncultivated* appearance. In the vicinity of our villages, where refinement is more exhibited, the fields are permitted to partake thereof and put on a cleaner appearance than in the more distant and retired places, where a rustic exterior and habits prevail.

The inroad of agricultural refinement is exceedingly palpable in all sections of the county; communication with the sea board is more direct, and ideas of improvement more prevalent. At first the farmer begins to smooth up his door yard and garden, his house and out buildings, and afterwards his fields and enclosures. This induces imitation, his neighbor looks on, and finally, not to be outdone, he improves his possessions, and so from farm to farm, from town to town, improvement becomes the order of the day, and a whole county partakes of its benefits.

He, who knew Steuben county twenty years ago, and judges of it from what he then saw, has the impression of rough, hilly and valley farms, poorly cultivated, their owners living in log cabins or poor frame houses, surrounded by rail or log fences, and scarcely the appearance of an attempt at ornament within doors or without; the swine rooting up the turf or wallowing in an adjacent mud hole; the cattle roaming the highway with the largest liberty; a cold, frosty, neglected aspect; poor crops and an unfavorable soil and climate. This was before the State Agricultural society had diffused its beneficial influences, or our county society had inspired our population with a spirit of improved tillage and culture. Since these combined influences have been felt a progress has been initiated in all our industrial pursuits. The farmer, the mechanic, the laborer, the manufacturer—all classes have advanced, are advancing, equally with those of other counties in the State.

Our farm buildings are comfortable, neat and commodious; our fields are clean, fertile and productive; our fences permanent and sufficient; our cattle and swine partake of the general improvement, are sheltered and well cared for; our highways are smooth and well kept, and our general appearance, in all respects, more pretentious and respectable.

For industry, intelligence and refinement, our industrial classes compare well with any of the other portions of the State, and are progressing with them equally in all the facilities and improvements of the age.

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PART V.

Agricultural Statistics of the several Towns of Steuben co.

Addison.

Addison is bounded on the north by Thurston, on the east by Erwin, on the south by Tuscarora, and on the west by Woodhull and Rathbone.

This town was originally named Tuscarora, and then Middletown. It is located in the south part of the county, upon both sides of the Canisteo river. Its surface is hilly, with river and creek flats, forming deep ravines. Its soil, upon the hills, clay mixed with the debris of broken shale; in the river flats alluvial. The central part of the town consists of the river valley, to which the water runs from the north and the south.

The principal village is Addison, which contains a population of about 1,500; where quite a large business is transacted in lumber, grain and merchandize. A large "foundry" is in operation at this place.

The total number of acres in this town 17,000. Improved 10,460 acres. Unimproved 6,540.

Value of farms	$241,921.	Value of stock	$34,596.
Acres plowed	2,646.	Acres in pasture	7,814
Tons of hay	3,417.	Bushels of grass seed	149

	Acres sown.	Bush. harvested.
Winter wheat	512	5,851
Spring wheat	492	4,775
Oats	775	17,820
Rye	12	128
Barley	49	1,026
Buckwheat	247	4,106
Corn	396	14.659
Potatoes	108	12,004
Peas	55	998
Beans	1	30
Turnips	1½	90

Apples, bushels, 11,235. Honey, lbs., 1,165. Cows, 532. Oxen, 188; other cattle 749. Butter, made, lbs., 56,550. Cheese, lbs., 3,640. Horses, 332. Mules, 16. Swine, 767. Number of sheep, 2,448; fleeces, 1,863; wool, lbs., 6,468. Poultry sold, $251. Eggs sold, $378. Domestic manufactures—yards of flannel, 674. Cotton, 386. Iron manufactures, $25,000. Sash and

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blind manufactures, $10,190. Coach and wagon manufactures, $1,200. Mills and products, $45,000. Saw mills, lumber made, $33,100. Plaster made, $250. Harness, saddle and trunk manufactures, $2,200.

AVOCA.

The town of Avoca was erected in 1843 from the towns of Bath, Cohocton and Wheeler, by which towns it is bounded on the north, east and south, and by Howard on the west. The Conhocton river passes through the town from northwest to southeast. Bennett's and Neil's creeks come into it from the west; the ten and twelve mile creek from the north. This town is highly favored for hydraulic privileges. Its soil is fertile, being partly alluvial and clay, the north and southwestern parts broken into hills and deep ravines.

The village of Avoca is beautifully situated upon the Conhocton river. The railroad passes through it, affording a ready transportation to and from market. It contains about 400 inhabitants. "Goff's Mills," a small place, with a post office, is near the borders of this town. For its size, it is one of the most productive and flourishing towns in the county.

Agricultural Statistics.

The town contains 19,672 acres of land; number of acres improved, 13,011; unimproved, 8,661; value, $627,876. Cash value of stock, $92,112; cash value of implements, $33,019.

	Acres sown.	Bush. harvested.
Spring wheat	489	5,235
Winter wheat	1,296	12,274
Oats	1,675	24,483
Rye	48	675
Barley	417	5,150
Buckwheat	218	1,548
Corn	460	10,875
Potatoes	110	6,449
Peas	226	3,198

Apples, 23,412 bushels; maple sugar, made 11,114 pounds; honey, 2,307 pounds; butter, 77,063 pounds; cheese, 43,456 pounds; cows, 874; oxen, 196; other cattle, 978; horses, 684; swine, 1,187; sheep, 5,580; fleeces, 3,067; wool, 9,310 pounds; woolen cloth, 257 yards; linen cloth, 367 yards; cotton, 134 yards; agricultural implements, $4,116; coaches & wagons, $875;

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grinding mills and gearing, $37,200; saw-mills, lumber, $15,717; shingles made, $1,175; leather manufactures, $1,560; products of tanneries, $6,580; cabinet ware, $980.

Bath.

Bath is the central town of the county. It is bounded by Avoca, Wheeler and Urbana, on the north, Savona on the east, Campbell, Thurston and Cameron, on the south, and Howard on the west. The Conhocton river passes through the town from northwest to southeast. The Five-mile creek comes in from the north, and several streams from the hills southwest; among these are Campbell and Stockton creeks. From the Conhocton, on each side, the hills rise abruptly, and are separated from each other by deep creek valleys. The soil of the valleys is gravelly, mixed with sand and clay, favorable to the production of corn, wheat and barley. The hills are better adapted for oats, buckwheat, and for grazing.

The village of Bath is favorably located on an extended plain, on the north side of the Conhocton, traversed by railroad—the center of communication from different parts of the county, and also the half-shire town of the county. It contains about 2,500 inhabitants. It contains two banks and two printing offices,—the Steuben Courier and Steuben Farmer's Advocate.

Kanona, four miles above Bath, is a small village of about 200 inhabitants, with mills, stores, hotels and a post office.

Agricultural Statistics.

The town contains 30,000 acres. Improved 18,590 acres. Unimproved, 11,410 acres. Value of farms $1,201,406. Value of stock $194,338. Value of implements $43,879. Hay gathered 5,719 tons.

	Acres sown.	Bush. harvested.
Spring wheat	1,864	14,984
Winter wheat	1,997	15,315
Oats	3,473	50,885
Rye	130	1,284
Barley	1,438	6,979
Buckwheat	1,082	5,432
Corn	1,584	27,330
Potatoes	347	14,479
Peas	125	985
Beans	41	387
Turnips	19	3,203

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Apples gathered 25,271 bushels; cider made 628 barrels; maple sugar 1,319 lbs; syrup 71 gallons; wine 39 gallons; honey 6,696 lbs; wax 363 lbs; cattle 1,793; oxen 205; cows 2,042; butter made 118,424 lbs; cheese made 13,630 lbs; horses 1,368; swine 2,350; sheep 12,169; fleeces 11,702; wool 38,126 lbs; poultry sold $984; eggs sold $1,743; fulled cloth made 1,296 yards; flannel 1,968 yards; linen 319 yards.

Manufactures.

Agricultural implements $4,675; plows and cultivators $917; blacksmithing $10,450; furnace $15,600; silver ware $2,500; tin and sheet iron $10,820; carding and cloth dressing $3,807; malt manufacture $25,000; painting and glazing $1,100; sash and blind manufacture $2,700; coach and wagons $18,725; grinding mills, etc., $97,830; cooper shop manufacture $525; planing mills $5,680; saw mills $44,540; brick $1,200; marble manufacture $4,500; plaster mills $5,000; boots and shoes $7,400; harness, saddle and trunk $4,640; tanneries $5,200; cabinet ware $25,000; book binding $1,500; daguerreotyping $900; printing $9,500; millinery ware $5,050; tailoring $19,500; butcher shop $7,500; undertakers $500. Number of churches 9; number of newspapers 2.

BRADFORD.

The town of Bradford was erected in the year 1837. It is bounded on the north by Wayne, on the east by the county line, on the south by Campbell, and on the west by Urbana and Savona. Mud creek passes through this town, forming a deep valley, otherwise the lands are elevated and hilly. The southern part of the town is made up of high hills, from which the water runs northeast into Mud creek, and southwest into Mead's creek. The soil of the valleys is alluvial, gravelly clay and sand, productive of corn and wheat; of the hills, suitable for pasturage. Quite a portion of the hill lands are new, and as yet unsubdued to careful tillage.

South Bradford, and Bradford Hollow, are villages within the town and post offices. At Bradford Hollow are the flouring mills of Jesse Munson, doing quite a business. This place was first settled by Frederick Bartly, to whom we have before made reference. Population about 300.

Agricultural Statistics.

Number of acres 13,062. Improved 7,264. Unimproved 5,768. Value of farms $336,570; of stock $57,794; of implements $12,575.

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	Acres sown.	Bush. harvested.
Spring wheat	850	7,155
Winter wheat	752	4,846
Oats	953	15,215
Rye	130	1,162
Barley	375	4,039
Buckwheat	560	4,178
Corn	475	8,247
Potatoes	84	5,949

Apples gathered 8,042 bushels; cider made 172 barrels; maple sugar made 2,262 lbs; maple molasses 74 gallons; honey collected 1,338 lbs; beeswax 78 lbs; cattle 560; oxen 85; cows 535; butter made 37,130 lbs.; cheese made 575 lbs; horses 347; swine 758; sheep 3,493; fleeces 2,178; wool 7,829 lbs; poultry sold $272; eggs sold $364; full cloth made 327 yards; flannel 587 yards; cotton cloth 25; linen 64; blacksmithing products $2,800; coach and wagons $2,500; flouring mills, etc., $26,780; cooper shops $675; saw mill, products of, $12,675; boot and shoe shops $5,725; harness, saddles and trunks $600; cabinet shop $700; chair factory $425. Churches, 4.

CAMERON.

The town of Cameron was erected in 1822; taken from Addison. It is bounded north by Bath, east by Thurston, south by Rathbone and Jasper, and west by Canisteo.

The Canisteo river passes through the southwest part of the town. The north part of the town comprises the high lands between the Canisteo and Conhocton, from which creeks run south to the river. The country is new, and somewhat rough, and broken into hills and ravines.

Cameron, West Cameron, and North Cameron, are small villages with post-offices. The two former have railroad stations.

Agricultural Statistics.

Number of acres, 30,669; improved, 10,871; unimproved, 19,798; value of farms, $431,207; of stock, $70,517; of implements, $15,696.

	Acres.		Bushels.
Spring wheat sown	457	harvested	2,695
Winter wheat sown	1,894	do	3,994
Oats sown	4,134	do	80,798
Rye sown	30	do	264
Barley sown	226	do	2,135

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	Acres.		Bushels.
Buckwheat sown	460	harvested	1,425
Corn sown	338	do	4,620
Potatoes sown	98	do	3,864
Peas sown	83	do	747

Apples gathered, 4,644 bushels; cider made, 53 barrels; maple sugar, 2,587 lbs.; maple molasses, 87 gallons; honey gathered, 4,361 lbs.; wax, 271 lbs.; cattle, 883; oxen, 140; cows, 639; butter made, 69,743 lbs.; cheese made, 2,125 lbs.; horses, 418; swine, 624; sheep, 2,847; fleeces, 1,616; wool, 5,233 lbs.; poultry sold, $139; eggs sold, $376; full cloth, 315 yards; flannel, 485 yards; linen, 123 yards; cotton, 267 yards.

Manufactures.

Flouring mills, products of, $21,205; Saw mills, $38,150; shingles, $1,275.

CAMPBELL.

The town of Campbell was formed in 1831; taken from Hornby. Is bounded on the north by Bradford and Bath, on the east by Hornby, on the south by Erwin, on the west by Thurston.

The Conhocton river passes through the town from northwest to southeast, Mead's creek comes in from the north, and Wolf's run, McNutt's run, Dry run, Stephens, and Michigan enter the Conhocton, and form the principal valleys which are productive in corn, wheat, oats and barley. The north part of the town is elevated into high hills, suitable for sheep pasture and dairy purposes.

Campbelltown is a small village and railroad station; Curtis's a lumbering establishment and railroad station.

Agricultural Statistics.

Number of acres, 23,719; improved, 8,242; unimproved, 15,297; value of farms, $480,510; of stock, $75,834; of implements, $18,236.

	Acres.		Bushels.
Spring wheat sown	420	harvested	3,520
Winter wheat sown	470	do	5,337
Oats sown	696	do	18,133
Rye sown	16	do	187
Barley sown	87	do	1,716
Buckwheat sown	204	do	2,440
Corn sown	371	do	15,287
Potatoes sown	69	do	5,420
Peas sown	16	do	275

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Tobacco, 327 lbs.; apples, 11,896 bushels; cider, 355 barrels; honey collected, 2,115 lbs.; wax, 94 lbs.; cattle, 787; oxen, 160; cows 616; butter 60,155 lbs.; cheese 1,976 lbs.; horses 326; swine, 580; sheep, 2,136; fleeces, 1,219; wool, 3,583; poultry sold, $259; eggs sold, $496; full cloth made, 178 yards; flannel, 454 yards; linen, 17 yards; cotton, 163 yards.

Manufactures.

Flouring mills, products of, $3,500; saw mills, $65,190; tanneries, $45,100.

CANISTEO.

Canisteo was erected into a town in 1796; but has since been changed by the erection of Troupsburgh, Greenwood, Hornellsville and Jasper, from parts of it. This town was first settled by Uriah Stephens; Solomon Bennett built the first grist mill, and opened the first store; Jedediah Stephens kept the first tavern. This town is bounded north by Howard, east by Cameron, south by Jasper and Greenwood, and west by Hartsville. The Canisteo river runs through the north part of the town, with a valley half a mile wide, with hills 450 feet high on each side. The principal creeks running from the south into the Canisteo, are Bennett's and Col. Bill's creeks, flowing through narrow, deep valleys, surrounded by steep hills.

Canisteo is the principal village, containing about 300 inhabitants; it is situated on Bennett's creek, and contains a flouring mill and tannery.

Canisteo Center is a small village; also Crosbyville, on the railroad; Bennett's creek, in the southwest part of the town is a post-office.

The surface of this town is principally hilly and elevated, except the river and creek valleys which are broken and depressed from the general elevation. The soil is a clayey and gravelly loam. Some of the richest lands in the county are the Bennett Flats, at the mouth of the Bennett's creek.

Agricultural Statistics.

Number of acres, 31,484; improved, 9,184 acres; unimproved, 22,300; value of farms, $602,245; of stock, $66,698; of implements, $22,610; tons of hay gathered, 2,241; grass seed gathered, 110 bushels.

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	Acres.		Bushels.
Spring wheat sown	477	harvested	4,510
Winter wheat sown	880	do	13,846
Oats sown	739	do	12,512
Rye sown	16	do	120
Barley sown	98	do	1,517
Buckwheat sown	225	do	1,827
Corn sown	409	do	10,862
Potatoes sown	130	do	7,164
Peas sown	76	do	921
Beans sown	11	do	124
Turnips sowed	5	do	626

Apples gathered, 9,893 bushels; cider made, 116 barrels; maple sugar made, 2,850 lbs.; maple molasses, 85 gallons; honey collected, 3,780 lbs.; wax, 179 lbs.; cattle, 1,016; oxen, 186; cows, 690; butter made, 52,040 lbs.; cheese, 520 lbs.; swine, 816; sheep, 1,914; fleeces, 1,888; wool, 5,589 lbs.; poultry sold, $172; eggs sold, $349; full cloth, 642 yards; flannel, 944 yards.

Manufactures.

Blacksmithing, $3,750; tin and sheet-iron, $1,200; coach and wagons, $575; grist mills, $35,250; planing mills, $1,560; saw mills, $100,375; boot and shoe shops, $3,500; harness, saddle and trunk, $750.

CATON.

CATON was erected into a town by the name of "*Wormly*" in 1839, and name changed to Caton in 1840. It is bounded north by Corning, east and south by the county line, and west by Lindley. The surface of this town is elevated, quite level, and less broken by deep valleys than any other town in the county. It has few small streams flowing northward, and extensive forests. Upon some of the highest hills of this town is found a coarse silicious conglomerate, which forms the bed of the coal measures. The rocks are generally shaly, producing a *shaly, clayey loam soil.* CATON is the chief village, containing about 40 houses and three churches. The town was first settled in 1819.

Agricultural Statistics.

Number of acres, 22,165; improved, 7,712; unimproved, 14,453; value of farms, $407,173; of stock, $66,455; implements, $14,084; tons of hay cut, 2,348; grass seed gathered, 128 bush.

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	Acres.		Bushels.
Spring wheat sown	481	harvested	4,350
Winter wheat sown	380	do	3,414
Oats sown	1,205	do	37,749
Rye sown	14	do	167
Barley sown	127	do	2,592
Buckwheat sown	367	do	5,832
Corn sown	380	do	12,228
Potatoes	158	do	20,607
Peas sown	28	do	487

Apples, 6,159 bushels; maple sugar made, 2,907 lbs.; honey gathered, 5,236 lbs.; wax, 149 lbs.; cattle, 925; oxen, 150; cows, 635; butter, 61,156 lbs.; cheese, 3,654 lbs.; swine, 635; sheep, 2,348; fleeces, 1,514; wool, 4,870 lbs.; poultry sold, $424; eggs, $895; full-cloth made, 72 yards; flannel, 275 yards; linen, 120 yards; cotton cloth, 317 yards.

Manufactures.

Saw mills, $8,700.

Cohocton.

The town of Cohocton was erected in 1812, from Bath and Dansville. Parts of Wayland and Avoca have been taken from it. It is bounded north by the county line, east by Prattsburgh, south by Avoca and Howard, west by Wayland. The surface is divided into ridges, by deep and narrow valleys, through which flow the Conhocton river and its tributaries. The soil is slaty and gravelly loam, in some parts clayey loam. This town was first settled by Joseph Bivin, who kept a tavern at "Twenty-two Mile tree," (Blood's,) also by Richard Hooker, in 1796. Liberty is a small village, containing 200 inhabitants. North Cohocton contains 175 inhabitants. Blood's, a station on the railroad, named after Calvin Blood, is a small, thriving hamlet. The town contains four churches.

Agricultural Statistics.

Number of acres, 26,021; improved, 11,580; unimproved, 14,441. Value of farms, $814,998; of stock, $84,506; of implements, $32,607. Tons of hay gathered, 1,466. Grass seed, 48 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	582	4,448
Winter wheat	1,548	13,752
Oats	1,436	28,138

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	Acres sown.	Bush. harvested.
Barley	507	4,209
Buckwheat	114	1,045
Corn	597	13,449
Potatoes	156	7,630
Peas	104	1,142
Beans	7	87
Turnips	13	1,540

Tobacco, 3,460 lbs.; apples, 17,095 bushels; cider, 158 bbls.; maple sugar, 3,751 lbs.; molasses, 78 gallons; honey, 1,915 lbs.; cattle, 729; oxen, 282; cows, 656; butter made, 67,245 lbs.; cheese, 6,235 lbs.; horses, 548; swine, 827; sheep, 4,144; fleeces, 3,255; wool, 14,252 lbs.; poultry, $275; eggs, $562; full cloth, 162 yards; flannel, 236 yards; linen, 178 yards.

Manufactures.

Grist mills, $14,450; saw mills, $42,750.

Corning.

Corning was erected into a town in 1796, by the name of "Painted Post;" changed to Corning in 1852—named after Hon. E. Corning, of Albany. Corning is bounded north by Hornby, east by the county line, south by Caton, and west by Erwin. The Chemung river runs from northwest to southeast through the centre of the town, making a wide valley and several lateral valleys by its tributaries, dividing up the surface into rounded hills and steep ridges. The creeks running into the Chemung are Post, Narrow, Borden, Clumpfoot and Winfield. The soil in the valleys is fine alluvium, sandy, gravelly, and in some places clayey; on the hills a heavy slaty and clayey loam. The valley soil is productive in grain; the hills, in timber and pasturage. Corning is quite a large village, on the south bank of the river, containing 3,676 inhabitants. It is the half-shire town of the county. There are two newspapers published at this place, "The Corning Journal," and "The Corning Democrat." It also contains two banks, a State arsenal, mills and manufacturing establishments. Knoxville, on the north side of the river, contains a population of 628. Gibson, one mile below Knoxville, has a population of 428. Centerville has 25 houses. East Painted Post is a small place with a post-office. The first settlement in this town was made in 1788, by Frederick Calkins and Benjamin Eaton, who kept the first store in 1791. Benj. Patter-

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son opened the first inn in 1798. The first school was kept in 1793, by Samuel Colegrove.

Agricultural Statistics.

Number of acres, 34,285; improved, 7,803; unimproved, 26,482. Value of farms, $527,330; of stock, $73,716; of implements, $16,971. Tons of hay gathered, 1,634.

	Acres sown.	Bush. harvested.
Spring wheat	186	1,936
Winter wheat	863	8,240
Oats	878	24,733
Rye	18	250
Barley	57	1,226
Buckwheat	257	3,756
Corn	577	21,625
Potatoes	94	10,359
Peas	12	275
Beans	3½	65
Turnips	3½	675

Hops, 4,850 lbs.; tobacco, 12,500 lbs.; apples, 8,828 bushels; grapes, 1,500 lbs.; cider, 287 bbls.; garden products, $2,010; honey, 3,311 lbs.; wax, 183 lbs.; neat cattle, 494; oxen, 78; cows, 678; butter, 26,316 lbs.; cheese, 500 lbs.; milk sold, 3,804 gallons; horses, 395; mules, 8; swine, 910; sheep, 828; fleeces, 527; wool, 1,516 lbs.; poultry, $71; eggs, $314; full cloth made, 12 yards; flannel, 93 yards.

Manufactures.

Agricultural implements, $2,500; blacksmithing, $10,250; furnaces, $190,000; tin and sheet iron, $6,400; bakeries, $80,400; distilleries, $10,300; stone quarries, $1,500; coach and wagons, $1,220; grist mills, $69,600; saw mills, $134,000; shingle factory, $3,300; boots and shoes, $12,400; tanneries, $7,800; cabinet shop, $13,867; tailoring, $15,000; printing offices, $3,600.

DANSVILLE.

Dansville was erected into a town in 1796. It is bounded north by Livingston county and Wayland; east by Wayland; south by Fremont and Hornellsville, and west by the county line. The general surface of the town is elevated into hills from 300 to 400 feet above the narrow valleys, dividing the town into ridges with steep declivities. From this town the head waters of the Canaseraga flow north, and of the Canisteo flow south. The soil

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in the east and north part of the town is a sandy and gravelly loam; in the south-west part gravel, clay and hardpan. This town was named after "Captain *Dan* Faulkner" of by-gone notoriety. Isaac Sterling kept the first inn in 1806, and James Jones the first school in 1811. Rogersville has a population of 200. Burns is a station on the railroad. Doty's Corners has a post office.

Agricultural Statistics.

Number of acres, 32,911. Improved, 20,031. Unimproved, 12,880. Value of farms, $984,201; of stock, $92,023; of implements, $28,898. Hay gathered, 2,064 tons.

	Acres sown.	Bush. harvested.
Spring wheat	1,612	5,521
Winter wheat	2,983	23,538
Oats	2,335	25,076
Rye	85	971
Barley	363	3,916
Buckwheat	284	1,593
Corn	580	14,999
Potatoes	208	13,445
Peas	157	1,115
Beans	12	125
Turnips	8	1,134

Apples gathered, 14,294 bushels; cider made, 132 barrels. Maple sugar, 3,350 lbs. Syrup 934 gals. Honey, 3,270 lbs. Wax, 642 lbs. Neat cattle, 1,099. Oxen, 126. Cows, 980. Butter, 93,541 lbs. Cheese, 18,539 lbs. Horses, 763. Swine, 1,358. Sheep, 5,469. Fleeces, 6,219. Wool, 20,410 lbs. Poultry, $417. Eggs, $566. Full cloths made, 630 yds.; flannel 465 yds.; linen, 96 yds.; cotton, 312 yds.

Manufactures.

Blacksmithing, $4,100. Furnaces, $15,500. Coach and wagon, $3,250. Flouring mills, $46,000. Saw mills, $38,082. Shingles, $250. Brick making, $14,000. Lime making, $8,750. Boots and shoes, $3,500. Harness, saddles and trunks, $450. Tanneries, $1,200.

ERWIN.

The town of Erwin was formed from Painted Post in 1826. It lies west of Corning. The hills rise from 400 to 600 feet above the valleys, which are from one to two miles wide. The Tioga and Canisteo rivers unite in the southeast part of the town; the

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Tioga and Conhocton in the north-east part, forming the Chemung river. The hill soil is shaly and clayey loam; the valleys fine alluvium suitable for corn. There is much lumber manufactured in the town. The village of "Painted Post" has a population of 800; has an iron foundry, machine shop, tannery and flouring mill.

The "Painted Post" of olden times is accounted for as follows: "In the summer of 1779, a party of tories and Indians, under the command of McDonald, returned from an incursion into the Susquehanna settlements, bringing with them many of their number wounded. When they arrived at the junction of the Tioga and Chemung rivers Captain Montour, a son of Catharine Montour, died. He was buried by the river side, and a post was set above his grave, on which were painted symbols and rude devices, setting forth the brave deeds of the deceased." This post was in existence until about 1810, when it disappeared.

Cooper's Plains contains 300 inhabitants. The first tavern keeper in town was David Fuller; first school teacher John E. Evans.

Agricultural Statistics.

Number of acres, 22,671. Improved, 4,097. Unimproved, 18,574. Value of farms, $720,689; of stock, $53,114; of implements, $15,047.

	Acres sown.	Bush. harvested.
Spring wheat	220	2,164
Winter wheat	523	4,746
Oats	464	13,138
Barley	18	404
Buckwheat	196	2,795
Corn	358	18,395
Potatoes	68	7,185
Peas	29	751
Beans	11	154

Apples, 375 bushels. Grapes, 500 lbs. Cider, 94 barrels. Honey, 1,735 lbs. Wax, 48 lbs. Neat cattle, 349. Oxen, 78. Cows, 385. Butter, 29,906 lbs. Cheese, 6,250. Milk, 803 gals. Horses, 215. Swine, 563. Sheep, 1,495; fleeces, 862; wool, 2,991 lbs. Poultry, $59; eggs, $245.

Manufactures.

Blacksmithing, $7,150. Furnaces, $34,750. Tin and sheet iron, $3,500. Coach and wagon, $3,800. Flouring mills, $52,500

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Saw mills, $173,160. Shingles, $6,875. Plaster mills, $3,325. Boots and shoes, $8,500. Harness, saddles and trunks, $2,500. Tanneries, $8,000. Cabinet ware, $1,300. Gunshops, $1,000.

Fremont.

Fremont was erected in 1854; was taken from Howard, Wayland, Hornellsville and Dansville, by which towns it is bounded. This town forms the ridge between the Canisteo and Conhocton rivers. The surface is hilly and elevated, with valleys through which run small creeks to the Canisteo. The soil is shaly loam; in some places clayey loam with hard pan. Neil's creek passes through the northeast corner of the town, giving power to Whitman's saw-mill. Fremont Centre is the chief village, with a post office. Haskinville and Big Creek are post offices. The town was first settled in 1812 by Job B. Rathbun, A. Baldwin, and S. Buck.

Agricultural Statistics.

Number of acres, 18,478: improved, 10,733; unimproved, 7,745; value of farms, $446,470; of stock, $59,617; of implements, $23,305; hay, 1,022 tons.

	Acres sown.	Bush. harvested.
Spring wheat	335	2,248
Winter wheat	716	4,010
Oats	2,909	27,620
Rye	19	162
Barley	234	1,626
Buckwheat	394	1,836
Corn	283	4,724
Potatoes	168	8,985
Peas	29	751
Turnips	3	745

Apples, 14,210 bushels; cider, 113 barrels; maple sugar, 3,263 pounds; molasses, 83 gallons; honey, 3,464 pounds; wax, 87 pounds; neat cattle, 615; cows, 501; oxen, 68; butter, 50,075 pounds; cheese, 5,775 pounds; horses, 502; swine, 645; sheep, 2,715; fleeces, 2,129; wool, 8,648 pounds; poultry, $965; eggs, $641; full cloth, 27 yards; flannel, 25 yards.

Manufactures.

Blacksmithing, $1,620; coach and wagons, $750; grist mills, $26,200; cooper shops, $350; saw mills, $5,450; boots and shoes, $1,250; harness, saddle and trunks, $400; tanneries, $1,400; cabinet shops, $755; silver ware, $500.

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Greenwood.

The town of Greenwood was erected in 1827, from Troupsburgh and Canisteo. It is bounded north by Hartsville, east by Jasper, south by West Union, and west by the county line. Bennett's creek runs through the east part of the town through a valley excavated from 400 to 600 feet below the hill tops. The central and western part of the town is elevated, rolling upland, of clayey loam; the valleys gravelly and shaly loam. East of Greenwood is a grindstone quarry. Greenwood contains thirty-five houses, and University Hotel and post office. "Rough and Ready," twelve houses and a post office. West Greenwood has a post office. The first settlements made in this town were in 1820, by Christian Cobey, J. E. and P. Stephens. The first grist mill was built by Col. John Stephens. The first store and hotel was kept by Levi Davis. First school taught by Sarah Karr.

Agricultural Statistics.

Number of acres, 21,625: improved, 10,065; unimproved, 11,560; value of farms, $358,885; of stock, $58,662; of implements, $14,716; tons of hay cut, 1,049; grass seed, 42 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	424	1,772
Winter wheat	288	1,538
Oats	1,618	21,555
Rye	30	328
Barley	24	195
Buckwheat	485	4,777
Corn	187	3,654
Potatoes	119	5,460
Peas	66	721
Turnips	18	1,685

Hops, 20 pounds; apples, 3,978 bushels; maple sugar, 6,625 pounds; maple syrup, 160 gallons; honey, 6,729 pounds; wax, 311 pounds; cattle, 1,043; oxen, 154; cows, 788; butter made, 79,900 pounds; cheese, 1,100 pounds; horses, 325; swine, 420; sheep, 1,701; fleeces, 1,390; wool, 4,598 pounds; poultry, $323; eggs, $264; full cloth, 187 yards; flannel, 666 yards; linen, 75 yards; cotton cloth, 125 yards.

Hartsville.

Hartsville was formed from Hornellsville in 1844. It is bounded north by Hornellsville, east by Canisteo, south by Green-

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wood, and west by the county line. The surface of this town is elevated into high hills, broken by the valley of Purdy's creek, which passes through from southwest to northeast, making a deep gorge throughout. Several small creeks join it, also small ones passing east to Bennett's creek. The hills rise 500 to 600 feet above these valleys, making a clayey loam soil; the valley soil is shaly loam, full of the debris of rocks excavated by running water. Purdy Creek post-office is at HARTSVILLE CENTRE, a small place of 15 houses. This town was first settled in 1809, by Benjamin Brookins. The first store was kept by Daniel P. Carpenter, in 1825; the first tavern by Henry Frisbee, in 1849. The first school taught by Miss Z. A. Purdy, in 1826.

Agricultural Statistics.

Number of acres, 20,821: improved, 7,189; unimproved, 13,632. Value of farms, $239,070; of stock, $47,018; of implements, $9,075. Tons of hay, 1,010.

	Acres sown.	Bush. harvested.
Spring wheat	423	1,774
Winter wheat	462	3,706
Oats	744	10,738
Barley	59	596
Buckwheat	210	1,531
Corn	183	3,050
Potatoes	82	3,505
Peas	66	555

Apples, 5,525 bushels; cider, 36 bbls.; maple sugar, 2,633 lbs.; honey, 1,195 lbs.; wax, 39 lbs.; neat cattle, 567; oxen, 119; cows, 427; butter, 37,045 lbs.; cheese, 3,290 lbs.; horses, 229; swine, 382; sheep, 3,007; fleeces, 2,449; wool, 9,776 lbs.; poultry, $163; eggs, $128; full cloth, 37 yards; flannel, 473 yards; linen, 88 yards; cotton cloth, 91 yards.

HORNBY.

HORNBY was erected from Painted Post in 1826. It is bounded north and east by Schuyler county, south by Corning, and west by Campbell. The surface of the town is high and rolling, excavated into deep, narrow valleys by Dry Run, Post and Borden creeks. Dry Run, in the northwest, runs into Mead's creek; Borden, in the southwest, runs into the Chemung, and Post creek, in the south, enters the Chemung opposite to Corning. The soil is shaly and clayey loam of superior quality for grass and grain.

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Hornby Forks is a small place of 21 dwellings. The town was first settled in 1814, by Uriah Nash. The first store was kept by Hon. A. B. Dickinson; the first tavern by Ezra Shaw. The first mill was built by —— La Fevre. The first school was kept by James C. Leach.

Agricultural Statistics.

Number of acres, 26,328; improved, 13,151; unimproved, 13,177. Value of farms, $524,450; of stock, $75,364; of implements, $17,949. Tons of hay, 4,203. Grass seed, 276 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	236	2,293
Winter wheat	1,209	12,519
Oats	2,265	62,234
Rye	86½	729
Barley	132	2,502
Buckwheat	526	7,111
Corn	254	8,108
Potatoes	208	22,465
Peas	46	790
Beans	6	125
Turnips	12	1,121

Apples, 14,201 bushels; cider, 278 bbls.; maple sugar, 1,178 lbs.; maple molasses, 54 gals.; honey, 5,509 lbs.; wax, 218 lbs.; neat cattle, 914; oxen, 150; cows, 663; butter, 59,885 lbs.; cheese, 1,915 lbs.; horses, 382; swine, 574; sheep, 3,365; fleeces, 1,993; wool, 7,519 lbs.; poultry, $556; eggs, $788; full cloth, 285 yards; flannel, 921 yards; linen, 199 yards; cotton, 56 yds.

Manufactures.

Saw mills, $14,400.

Hornellsville.

This town was formed from Canisteo in 1820. It is bounded north by Fremont and Dansville, east by Howard, south by Hartsville, and west by Almond, in Allegany county. The town is chiefly rolling upland hills, divided into two equal parts by the valley of the Canisteo, which is from one to two miles wide, bordered by steep hills 400 to 600 feet high. Crosby creek and Canacadea creek come into the Canisteo from the west through deep, narrow valleys. The soil is clayey and gravelly loam. The valley of the Canisteo is very fertile. The highest hills are in

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the east part of the town, bordering on Howard; in the south part, bordering on Hartsville, and in the southwest and west on each side of the valley of the Canacadea creek. HORNELLSVILLE is located at the junction of the Canacadea creek and the Canisteo river. It is an important station on the New York and Erie railroad, where the Buffalo and New York City railroad connects with it. The "Hornellsville Tribune," and "Canisteo Valley Journal," are published here. Two flouring mills and a population of 1,519. Arkport, on the Canisteo river, contains about 50 dwellings. A part of the village of ALMOND is in this town; contains about 1,000 inhabitants. This town was first settled by Benjamin Crosby in 1792. The first store and inn was kept by George Hornell; the first school taught by Abigail Hulburt in 1796.

Agricultural Statistics.

Number of acres, 17,962; improved, 8,476; unimproved, 9,216. Value of farms, $713,204; of stock, $67,326; of implements, $22,213. Tons of hay cut, 1,784. Grass seed, 36½ bushels.

	Acres sown.	Bush. harvested.
Spring wheat	465	2,594½
Winter wheat	3,517	10,391
Oats	854	11,866
Rye	9	87
Barley	66	514
Buckwheat	255	1,030
Corn	388	8,244
Potatoes	118	5,311
Peas	71	643
Beans	13¼	111
Turnips	11½	1,121

Flax, 80 lbs.; apples, 6,217 bushels; cider, 123 bbls.; maple sugar, 405 lbs.; molasses, 37 gals.; honey, 3,440 lbs.; wax, 177 lbs.; neat cattle, 756; oxen, 134; cows, 530; butter, 50,150 lbs.; cheese, 1,204 lbs.; milk sold, 11,695 gals.; horses, 359; swine, 640; sheep, 2,522; fleeces, 1,977; wool, 6,243 lbs.; poultry sold, $431; eggs, $565; full cloth, 146 yards; flannel, 329 yards; linen, 108½ yards; cotton, 211 yards.

Manufactures.

Fanning mills, $1,500; plows and cultivators, $1,010; furnaces, $14,600; blacksmithing, $1,450; tin and sheet iron, $8,514;

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bakeries, $3,000; candles and soap, $200; distilleries, $5,200; sash and blind, $3,600; car factories, $28,000; coach and wagon, $19,564; grist mills, $128,293; cooper shop, $300; planing mills, $12,000; saw mills, $111,200; brick factories, $3,300; marble factories, $2,100; boots and shoes, $13,450; harness, saddle and trunk, $3,157; tanneries, $7,749; cabinet shops, $6,000; printing, $8,500; hats and caps, $1,950; millinery, $1,250; tailoring, $26,500; butchering, $9,500; tobacco and segars, $1,125; undertaking, $800.

HOWARD.

Howard was erected in 1812. It is bounded north by Fremont, Cohocton and Avoca, east by Bath, south by Canisteo, west by Hornellsville. This town was first settled in 1806, by Abram Johnson. The first inn was opened in 1816, by Benjamin Bennett. The surface of this town is elevated and rolling, forming part of the high lands between the Conhocton and the Canisteo. In the northeast part of the town is ORMON'S POND; also in the extreme northeast corner a pond from which flows a stream which connects with creeks near Goff's Mills. The soil of this town is clay loam. Howard Flats, though high, the loam is of great depth. South of the Flats, is the grist mill of Alonzo Graves, in a deep valley surrounded by hills, the declivity of which shows the debris and outcropping of shale and slate. HOWARD FLATS contain a population of 143. TOWLSVILLE, in the eastern part of the town, contains about 100 inhabitants. BUENA VISTA, in the south part of the town, is a small hamlet surrounded by a lumbering district. SOUTH HOWARD is a post-office. GOFF'S MILLS, post-office and mills.

Agricultural Statistics.

Number of acres, 38,191; improved, 20,534; unimproved, 17,657; value of farms, $793,651; of stock, $138,148; of implements, $38,100; tons of hay, 2,476; grass seed, 66 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	1,657	15,041
Winter wheat	1,240	6,576
Oats	4,579	57,948
Rye	7¾	20
Barley	628	6,042
Buckwheat	778	4,515
Corn	420	9,473

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	Acres sown.	Bush. harvested.
Potatoes	253	13,539
Peas	201	1,799
Beans	4½	158
Turnips	11¾	1,408

Flax, 25 lbs.; flax seed, 85 bushels; hops, 1,880 lbs.; apples, 24,461 bushels; cider, 249 barrels; maple sugar, 9,978 lbs.; maple syrup, 150 gallons; honey, 6,275 lbs.; wax, 242 lbs.; neat cattle, 1,406; oxen, 220; cows, 1,137; butter, 129,746 lbs.; cheese, 13,690 lbs.; horses, 810; mules, 2; swine, 1,338; sheep, 6,998; fleeces, 5,346; wool, 17,204 lbs.; poultry, $314; eggs, $727; full cloth, 575 yds.; flannel, 1,034 yds.; linen, 176 yds.; cotton, 908 yds.

Manufactures.

Blacksmithing, $1,600; coach and wagons, $1,000; flouring mills, $26,000; saw mills, $18,154; shingles, $600; boots and shoes, $1,500; harness, saddle and trunks, $2,000; tanneries, $1,500; tailoring, 4,000; asheries, $280.

Jasper.

Jasper was erected from Canisteo and Troupsburgh, in 1827. It has Canisteo and Cameron on the north, Rathbone on the east, Woodhull and Troupsburgh on the south, and Greenwood on the west. The town was first settled in 1807, by Nicholas Botzman, Ebenezer Spencer and William Wooley. N. Botzman opened the first inn. Amanda Smith taught the first school. The surface is very hilly and broken; the hills rise over 2,000 feet above tide water; the streams are small, and run through deep and narrow valleys; the Col. Bill's creek rises near the residence of P. Ostrander, and runs north to the Canisteo; the head waters of the Tuscarora creek rise near the house of J. S. Whiteman, running southeast into Woodhull; the soil is a slaty, gravelly and clayey loam. Jasper Four Corners has a population of 222; Jasper Five Corners has 15 houses; West Jasper and South Hill have post-offices.

Agricultural Statistics.

Number of acres, 29,080; improved, 13,227; unimproved, 15,853; value of farms, $450,248; of stock, $84,989; of implements, $18,248; tons of hay, 2,011; grass seed, 39 bushels.

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	Acres sown.	Bushels harvested.
Spring wheat	655	4,489
Winter wheat	549	2,651
Oats	2,390	33,397
Rye	22½	163
Barley	138	1,312
Buckwheat	541	4,361
Corn	272	4,874
Potatoes	750	7,262
Peas	174	1,575
Beans	10	70
Turnips	5	760

Hops, 1,880 lbs.; apples, 4,298 bushels; cider, 84 barrels; maple sugar, 11,881 lbs.; molasses, 298 gallons; honey, 5,892 lbs.; wax, 210 lbs.; neat cattle, 1,316; oxen, 137; cows, 802; butter, 93,168 lbs.; cheese, 3,335 lbs.; horses, 496; swine, 726; sheep, 3,385; fleeces, 3,556; wool, 13,370 lbs.; poultry, $498; eggs, $170; full cloth, 330 yds.; flannel, 1,012 yds.; linen, 279 yds.; cotton, 814 yds.

Manufactures.

Blacksmithing, $1,900; coach and wagons, $1,400; grist mills, $2,500; cooper shops, $1,050; saw mills, $12,550; shingles, $3,000; boots and shoes, $200; harness, $600; tanneries, $1,000; cabinet-ware, $800.

LINDLEY.

LINDLEY was formed from Erwin in 1827. Lindley is bounded by Erwin on the north, Caton on the east, Pennsylvania on the south, and Tuscarora on the west. The east and west parts of Lindley are hilly upland, divided by the deep valley of the Tioga river, which is about one mile wide and bounded by steep hill sides 400 to 600 feet high; the hills are principally covered with forests; the soil on the hills is a heavy, shaly loam; some of the stone on the tops of the hills *conglomerate;* the Tioga valley is a rich alluvium; Col. Eleazur Lindley, from New Jersey, was the first settler, in 1790; the first log cabin erected in all this part of the State, was upon the junction of the Cowanesque with the Tioga, near the residence of Mrs. Lindsley. LINDLEYTOWN has 15 houses; ERWIN CENTER is a station in the north part of the town; the Blossburgh railroad passes through the town on the east side of the Tioga river.

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Agricultural Statistics.

Number of acres, 23,603; improved, 3,729; unimproved, 19,874; value of farms, $426,495; of stock, $33,383; of implements, $11,455.

	Acres sown.	Bushels harvested.
Spring wheat	116	1,138
Winter wheat	138	1,261
Oats	446	11,928
Rye	10	65
Barley	27	598
Buckwheat	175	3,239
Corn	295	13,036
Potatoes	48	6,933

Apples, 5,905 bushels; cider, 238 barrels; honey, 2,137 lbs.; wax, 51 lbs.; neat cattle, 441; oxen, 78; cows, 327; butter, 20,962 lbs.; cheese, 100 lbs.; horses, 121; swine, 386; sheep, 967; fleeces, 819; wool, 2,700 lbs.; poultry, $50; eggs, $127; linen cloth, 37 yds.

Manufactures.—Saw mills, $104,200.

PRATTSBURGH.

The town of Prattsburgh was erected in 1813, from Pulteney. It is bounded on the north by Italy and Naples, east by Pulteney, south by Wheeler and Urbana, west by Cohocton. The east part of the town forms the highlands between Crooked lake and Five Mile creek, the central, the elevation between the Five and Ten Mile creeks, the western, the ridge between Ten and Twelve Mile creeks, and the extreme western border is Lent Hill, west of the Twelve Mile creek. The hills and valleys range generally from northeast to southwest. The hills rise from 300 to 400 feet above the valleys. The valley of the Five Mile creek is 1,400 feet above tide water. This town was first settled in 1801, by Jared Pratt. Robert Porter built the first mill in 1806. The first school was taught by Horace Ball, in 1807. Prattsburgh village has a population of 600. Franklin academy located here, is of high reputation. Several manufacturing establishments. Riker Hollow is a small village, and post office, with saw-mill. Lyons Hollow a hamlet, from Captain A. P. Lyon.

Agricultural Statistics.

Number of acres, 34,944; improved, 23,136; unimproved, 11,858; value of farms, $895,079; of stock, $132,398; of implements, $36,602; hay, tons, 2,954; grass seed, 225 bushels.

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	Acres sown.	Bush. harvested.
Spring wheat	1,804	20,180
Winter wheat	1,045	10,124
Oats	3,391	40,676
Rye	20	196
Barley	715	7,810
Buckwheat	881	2,295
Corn	441	7,129
Potatoes	167	8,748
Peas	252	2,067
Beans	31	219
Turnips	11	376

Flax, 1,660 pounds; flax seed, 126 bushels; apples, 14,790 bushels; cider, 111 barrels; maple sugar, 4,287 pounds; molasses, 157 gallons; honey, 5,510 pounds; wax, 220 pounds; neat cattle, 1,289; oxen, 102; cows, 929; butter, 104,620 pounds; cheese, 7,717 pounds; milk sold, 492 gallons; horses, 856; swine, 1,022; sheep, 8,093; fleeces, 8,877; wool, 30,383 pounds; poultry, $446; eggs, $935; full cloth, 106 yards; flannel, 912 yards; cotton, 170 yards.

Manufactures.

Plows and cultivators, $350; blacksmithing, $2,500; furnaces, $1,500; tin and sheet iron, $2,500; painting and glazing, $875; coach and wagons, $1,500; grist mills, $46,000; carpenter shops, $1,200; cooper shops, $550; saw-mills, $18,800; boots and shoes, $2,550; harness, $1,100; tanneries, $2,700; cabinet ware, $1,300; millinery, $1,250; tailoring, $800; butchering, $1,600.

Pulteney.

Pulteney was erected from Bath in 1808. It is the northeast corner town of the county, and lies upon the west shore of Crooked lake. The surface rises 700 to 800 feet above the waters of the lake, and is rolling. The declivities of the lake shore are broken by deep narrow gorges, formed by small creeks. The soil is shaly, gravelly loam, in some places clayey loam, is productive for grain and pasturage. First settlement in town was in 1802. The first saw-mill and grist mill were built by Melchior Waggoner, in 1814. Shadrach Norris kept the first inn, in 1807. Augustus Tyler, in 1808, the first store. First school taught by Polly Wentworth, in 1808. Harmonyville is a small village of 160 inhabitants. Bluff Post has about 150 population. Peltonville

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is a small hamlet. Gulickeville has 50 inhabitants and store house on the lake. Gibson's Landing is on the lake. Scuttville in southwest part of town.

Agricultural Statistics.

Number of acres, 20,618; improved, 15,730; unimproved, 4,878; value of farms, $763,604; of stock, $77,667; of implements, $39,414; hay, tons, 2,250; grass seed, 122 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	1,491	9,133
Winter wheat	1,679	9,484
Oats	1,470	19,947
Rye	74	489
Barley	420	4,398
Buckwheat	873	3,813
Corn	566	6,474
Potatoes	105	5,268
Peas	40	368

Apples, 8,347 bushels; cider, 130 barrels; maple sugar, 981 pounds; molasses, 60 gallons; honey, 5,127 pounds; wax, 309 pounds; neat cattle, 1,191; oxen, 81; cows, 755; butter, 86,971 pounds; cheese, 5,419 pounds; horses, 694; swine, 1,073; sheep, 4,968; fleeces, 4,981; wool, 16,750 pounds; full cloth, 90 yards; flannel, 458 yards; linen, 180 yards; cotton cloth, 30 yards; poultry sold, $623; eggs sold, $953; grapes, 5,400 pounds.

Manufactures.

Blacksmithing, $850; wagons, $1,900; cooper shop, $4,600; saw-mills, $2,800; boots and shoes, $1,200; cabinet ware, $1,200.

RATHBONE.

RATHBONE was erected into a town in 1856. It was taken from Addison, Cameron and Woodhull, by which towns it is surrounded. Its surface is a high rolling upland, broken by the valley of the Canisteo river and a branch of the Tuscarora creek; the hills are 300 to 400 feet above the valleys; ledges of shale and grit crop out on the hillsides; the soil is a clayey and shaly loam; in the valleys, alluvium mixed with the debris of shale and slate deposited by the waters. This town was first settled in 1793, by James Hadley and Wm. Benham. The first saw mill was built in 1806, by Isaac Tracy. The first inn was kept by Lemuel Benham in 1804. The first store was opened in 1812, by General

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Rathbone, from whom the town was named. RATHBONEVILLE, on the Canisteo river, has a population of 400 and a flouring mill. CAMERON MILLS and WEST ADDISON are small hamlets with post-offices. There are several lumbering companies, saw mills and shingle mills in the town—the principal being the "Derby Building and Lumbering Company."

Agricultural Statistics.

Number of acres, 22,000; improved, 11,560; unimproved, 10,440. Value of farms, $269,491; of stock, $; of implements, $.

	Acres sown.	Bush. harvested.
Spring wheat	314	2,164
Winter wheat	154	1,078
Oats	1,465	29,300

Of the other crops and industrial pursuits, we have been unable to obtain full statistics.

SAVONA.

The town of Savona was erected in 1860, taken from Bath. It has Urbana on the north, Bradford on the east, Campbell and Thurston on the south, and Bath on the west. The surface is high rolling upland, broken in the southwest part of the town by the valley of the Conhocton river, and in the eastern part by the valley of Mud creek. In this valley are several small lakes of great depth. The hills rise above these valleys from 300 to 600 feet. MOUNT WASHINGTON is elevated 1,579 feet. The soil is a clayey, shaly loam; the valleys are rich alluvium. SAVONA is a flourishing village of 250 inhabitants. SONORA, in the northeast part of the town, has 20 dwellings. The first settlement was made in the town in 1793, by Henry McElwee. Thomas Corbit and John Dolson came in 1794, also Henry Bush. Corbit kept a house of entertainment.

This town having been erected in the fall of 1860, the products for that year are reported in the town of Bath, also the statistics of manufactures.

The town contains 23,000 acres; improved, 14,256 acres; unimproved, 8,744.

	Acres sown.	Bush. harvested.
Spring wheat	528	4,796
Winter wheat	114	1,272
Oats	710	12,194
Barley	217	3,245

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	Acres sown.	Bush. harvested.
Buckwheat	394	1,574
Corn	415	8,975
Potatoes	94	6,580
Peas	21	794
Turnips	14	1,200

Apples, 10,874 bushels; cider, 154 bbls.; honey collected, 1,876 lbs.; wax, 84 lbs.; cattle, 764; oxen, 154; cows, 575; butter, 54,197 lbs.; cheese, 1,714 lbs.; horses, 320; swine, 574; sheep, 1,975; wool, 3,117 lbs.; poultry sold, $241; eggs, $384; full cloth, 164 yards; flannel, 414 yards; linen, 35 yards; cotton, 150 yards.

THURSTON.

Thurston was formed in 1844. It is bounded north by Bath, east by Campbell, south by Addison and Rathbone, and west by Cameron. Its hills form a portion of the dividing ridge between the Conhocton and Canisteo rivers; these hills are high and broken, from 500 to 600 feet above the river valleys. Stockton creek runs through the northwest part of the town, northward to the Conhocton. Michigan creek, in the eastern part, runs east to the Conhocton; both of these creeks flow through deep ravines, bordered by steep hillsides. The soil is shaly, gravelly loam. The town was named after Wm. R. Thurston, of New York; was first settled in 1813, by William Smith, Anderson Carpenter and Luke Bonney; they located at BONNEY'S HILL. The first store was kept by Harlow Sears, at MERCHANTSVILLE. No tavern has ever been kept in town or liquor sold. MERCHANTSVILLE, BONNEY HILL, RISINGVILLE, THURSTON and SOUTH THURSTON, are hamlets and post-offices.

Agricultural Statistics.

Number of acres, 23,000; improved, 7,917; unimproved, 15,083. Value of farms, $319,239; of stock, $36,123; of implements, $12,254. Tons of hay cut, 1,231. Grass seed, 62 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	415	1,768
Winter wheat	426	2,861
Oats	612	9,070
Rye	8	61
Barley	143	1,416
Buckwheat	266	963

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	Acres sown.	Bush. harvested.
Corn	169	2,818
Potatoes	71	3,055
Peas	15	165
Turnips	19	635

Apples, 3,368 bushels; cider, 23 bbls.; maple sugar, 838 lbs.; molasses, 114 gals.; honey, 2,728 lbs.; wax, 121 lbs.; neat cattle, 365; oxen, 84; cows, 295; butter, 32,560 lbs.; cheese, 665 lbs.; horses, 170; swine, 331; sheep, 1,354; fleeces, 1,098; wool, 4,405 lbs.; poultry, $270; eggs, $436; flannel cloth, 462 yards; full cloth, 308 yards; linen, 36 yards; cotton, 342 yards.

Manufactures.

Blacksmithing, $850; coach and wagons, $480; saw mills, $31,943; tanneries, $1,200.

TROUPSBURGH.

Troupsburgh was erected in 1808; taken from Middletown, (Addison.) This town has Jasper and Greenwood on the north; Woodhull on the east; county line on the south, and West Union on the west. This town contains some of the highest hills in the county; they rise 2,500 feet above tide water, and are capped with a coarse, silicious conglomerate, which forms the floor of the coal measures. The hills are broken by deep valleys, through which run small creeks. Troup's creek runs south, affording hydraulic power. The soil is a clayey loam, mixed with slate. Troupsburgh Centre is a small village of about 130 inhabitants; has an academy. East Troupsburgh and West Troupsburgh are post offices. South Troupsburgh has about ninety inhabitants. Young Hickory is a small village. The first settlement was made in 1805, by Samuel B. Rice. The first school was taught by Abner Thomas. The first inn was kept by Lieut. Reynolds; the first store by Ichabod C. Leach. The first grist mill was built by George Martin.

Agricultural Statistics.

Number of acres, 38,000. Improved, 20,053. Unimproved, 17,947. Value of farms, $443,671; of stock, $94,299, of implements, $17,767. Hay, tons, 2,622. Grass seed, 85 bushels.

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	Acres sown.	Bush. harvested.
Spring wheat	572	3,517
Winter wheat	478	2,478
Oats	1,723	21,022
Buckwheat	512	3,907
Corn	448	8,934
Potatoes	163	8,191
Peas	213	1,955

Apples, 8,518 bushels; cider, 46 barrels; maple sugar, 16,953 pounds; molasses, 212 gallons; honey, 9,025 pounds; wax, 322 pounds; neat cattle, 1,732; oxen, 252; cows, 932; butter, 103,775 pounds; cheese, 2,816 pounds; horses, 457; swine, 750; sheep, 5,340; fleeces, 3,243; wool, 10,870 pounds; poultry sold, $484; eggs, 198; full cloth, 636 yards; flannel, 1,774 yards; linen, 421 yards; cotton cloth, 769 yards.

Manufactures.

Blacksmithing, $1,950; carding cloth dressing, $350; grist mills, $11,410; cooper shops, $650; saw-mills, $2,210; boots and shoes, $300; cabinet ware, $150.

Tuscarora.

The town of Tuscarora was erected in 1860, taken from Addison. It has Addison on the north, Lindley on the east, the State line on the south, and Woodhull on the west. The surface is a hilly upland broken by the valleys of small streams, with steep hill sides from 300 to 400 feet high. The highest hills are capped with conglomerate. The soil is a clayey loam, with strips of gravel and alluvium upon the streams. The highest hills are in the south part of the town. The creeks run north to the Tuscarora. Addison Hill is a small village and post office. Some of the more elevated points in the town are near the residences of J. Hampton and J. Van Gorder.

The town contains 23,000 acres; improved, 12,154; unimproved, 10,846; value of real estate, $169,879; of stock, &c., $45,648.

The agricultural products, and manufactures for 1860, are contained in the report of Addison.

Urbana.

This town was formed in 1822; taken from Bath. It has Pulteney and Prattsburgh on the north, Wayne and Bradford on the east, Savona and Bath on the south, and Wheeler on the west.

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It has two elevations of hills rising from 800 to 1,100 feet above the Pleasant valley, by which they are divided. Pleasant valley is a southern continuation of the Crooked Lake valley to the valley of the Conhocton. In this valley rises Cold Spring creek, and runs north to Crooked Lake; a branch comes in from the west and unites with it at the old Townsend place. The soil of the hills is a heavy gravelly loam; of the valley gravelly alluvium. The side hills from the Crooked Lake southward, are favorable to the cultivation of the grape, and the hills favorable to wool growing. The finest flocks in the county are kept in this town. HAMMONDSPORT is an incorporated village, lies at the head of Crooked Lake, has a foundery, wagon manufactures, a steam boat plying daily to and from Penn Yan; population, 560. NORTH URBANA has 20 houses; Cold Spring a small hamlet, and Mount Washington a post-office. This town was first settled in 1793, by Williams Aulls; the first inn was kept by Caleb Chapman; the first store by Henry A. Townsend; the first school by Eliphalet Norris.

Agricultural Statistics.

Number of acres, 24,000; improved, 17,126; unimproved, 6,874; value of farms, $854,694; of stock, $105,535; of implements, $34,072; hay cut, 2,252 tons; grass seed, 24 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	1,862	10,740
Winter wheat	1,743	9,590
Oats	1,794	14,651
Rye	166	1,555
Barley	967	6,591
Buckwheat	816	1,944
Corn	673	7,596
Potatoes	117	4,626

Apples, 12,335 bushels; cider, 259 barrels; garden products, $255; maple sugar, 125 lbs.; molasses, 29 galls.; grapes, 40,000 lbs.; wine made, 5,600 gallons; brandy, 800 gallons; honey, 2,554 lbs.; wax, 177 lbs.; neat cattle, 1,019; oxen, 98; cows, 761; butter, 62,350 lbs.; cheese, 3,070 lbs.; milk sold, 900 gallons; horses, 580; swine, 1,051; sheep, 9,946; fleeces, 10,318; wool, 29,352 lbs.; poultry sold, $685; eggs sold, $633; full cloth made, 247 yds.; flannel, 488 yds.; linen, 70 yds.; cotton cloth, 41 yds.

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Manufactures.

Plows and cultivators, $345; blacksmithing, $4,100; furnaces, $2,500; coaches and wagons, $21,000; grist mills, $32,000; saw mills, $13,500; turning shops, $550; plaster mills, $2,500; tanneries, $3,600; cabinet ware, $1,500.

WAYLAND.

Wayland was formed from Cohocton and Dansville, in 1848. It is the most western town upon the north border of the county. Its surface is rolling and hilly, and forms part of the summit between the Susquehanna river and Lake Ontario. Some of the hills rise 1,800 feet above tide water. Several small streams rise in this town. Neil's creek rises out of Mud Lake and runs south. The waters of Loon Lake run north through a subterranean outlet of half a mile, and form a valuable water power. In the north part of this town the soil is muck and gravel, in the south a shaly loam. WAYLAND DEPOT has 40 houses; PERKINSVILLE 30 houses; LOON LAKE and PATCHIN'S MILLS are post-offices. This town was first settled in 1806, by John H. Miller and Thomas Bowles. The first mill was built in 1816, by Dugald Cameron. The first inn was kept by Samuel Taggart; the first store by James L. Moniere; the first school by Thomas Wilbur. There are three churches in town.

Agricultural Statistics.

Number of acres, $25,000; improved, 13,635; unimproved, 11,365; value of farms, $711,704; of stock, $83,919; of implements, $30,539; hay cut, 1,568 tons; grass seed 20 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	434	3,647
Winter wheat	1,473	11,049
Oats	1,212	17,846
Rye	96	1,203
Barley	182	2,035
Buckwheat	194	1,569
Corn	309	7,524
Potatoes	173	11,604
Peas	109	1,053

Apples, 4,476 bushels; cider, 23 barrels; maple sugar, 112 lbs.; honey, 1,921 lbs.; wax, 56 lbs.; neat cattle, 769; oxen, 262; cows, 780; butter, 55,250 lbs.; cheese, 23,500 lbs.; horses, 504; swine, 1,005; sheep, 1,805; fleeces, 1,451; wool, 5,987

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lbs.; poultry, $115; eggs, $75; full cloth, 354 yards; flannel, 396 yards; linen, 192 yards; cotton cloth, 346 yards.

Manufactures.

Blacksmithing, $1,900; grist mills, $33,996; saw mills, $49,425; tanneries, $10,300.

WAYNE.

This town was erected in 1796, as "*Frederickstown*;" name changed to Wayne, in 1808. It lies north of Bradford, and east of Urbana, and the Crooked Lake. Its surface rises from 400 to 600 feet high above the waters of the lake. The soil is slaty and gravelly loam, covering hard pan. LITTLE LAKE lies on the eastern borders, and some 300 feet above Crooked Lake. Its outlet runs into Mud Lake, and thence into Mud creek. This lake abounds in fine fish. WAYNE HOTEL lies near the head of this lake; contains about 300 inhabitants. WAYNE FOUR CORNERS is a post-office; Kenka is a landing on Crooked Lake. This town was first settled in 1791 by Zephaniah Hoff, Solomon Wixom and Henry Mapes. The first store was kept by James Silsbee; the first inn by Enos Silsbee; the first school by Nathaniel Frisbee.

Agricultural Statistics.

Number of acres, 13,000; improved, 9,813; unimproved, 3,187; value of farms, $424,873; of stock, $56,432; of implements, $15,214; hay cut, 1,098 tons; grass seed, 46 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	856	5,824
Winter wheat	830	3,215
Oats	1,292	13,449
Rye	46	189
Barley	442	3,496
Buckwheat	694	2,128
Corn	457	8,018
Potatoes	95	4,741

Apples, 8,455 bushels; cider, 141 barrels; maple sugar, 93 lbs.; molasses, 34 gallons; honey, 2,275 lbs.; wax, 55 lbs.; neat cattle, 545; oxen, 38; cows, 472; butter, 55,345 lbs.; cheese, $1,816 lbs.; horses, 357; swine, 754; sheep, $3,553; fleeces, 3,289; wool, 10,749 lbs.; full cloth, 251 yds.; flannel, 298 yds.; linen, 24 yds.; cotton cloth, 155 yds.; poultry sold, $417; eggs sold, $656.

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Manufactures.

Blacksmithing, $750; boat building, $1,450; wagons and carriages, $1,200; saw mills, $8,500; tailoring, $350.

West Union.

This town was erected in 1845 from Greenwood. It is the southwest corner town of the county. Its surface rises 2,500 feet above tide water, and is a broken, hilly upland. The soil is a heavy, slaty loam. Bennett's creek rises in this town, and runs north to the Canisteo. Extensive lumber forests remain in the towns, and lumbering is largely pursued. Rexville, Wileysville and West Union are post offices and small villages. The town was first settled in 1822, by Abram V. Olmstead. John Wiley settled at Wileysville in 1849, and built the first saw and grist mill. Charles Rexford kept the first inn. Walter B. Olmstead the first store.

Agricultural Statistics.

Number of acres, 23,000; improved, 7,265; unimproved, 15,735; value of farms, $273,355; of stock, $42,980; of implements, $10,575; hay cut, 721 tons; grass seed, 41 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	167	1,347
Winter wheat	183	1,055
Oats	1,233	18,155
Rye	31	187
Barley	9	54
Buckwheat	447	4,444
Corn	177	3,022
Potatoes	148	7,878
Peas	47	278
Turnips	33	4,065

Apples, 610 bushels; maple sugar, 18,179 pounds; molasses, 351 gallons; honey, 3,885 pounds; wax, 210 pounds; neat cattle, 828; oxen, 201; cows, 499; butter, 41,980 pounds; cheese, 17,700 pounds; horses, 179; swine, 369; sheep, 1,206; fleeces, 581; wool, 1,372 pounds; poultry sold, $224; eggs sold, $266; full cloth made, 147 yards; flannel, 340 yards; linen, 243 yards; cotton cloth, 860 yards.

Manufactures.

Blacksmithing, $675; saw mills, $23,800; shingles, $675.

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Wheeler.

The town of Wheeler was erected from Bath and Prattsburgh in 1820. It lies south of Prattsburgh and north of Bath. The surface is hilly, broken by the valleys of the Five and Twelve Mile creeks, and their tributaries. The hills rise from 400 to 600 feet above the valleys. The soil is a clayey and shaly loam, productive in grain and grass. Wheeler Center and Mitchelville are post offices, containing each from 15 to 20 houses. This town was first settled in 1799, by Captain Silas Wheeler. He built the first saw mill in 1802. George W. Taylor the first grist mill in 1803, at the old Taylor place. The first inn was kept by John Beals; the first store by Cornelius Younglove; the first school by Uriel Chapin.

Agricultural Statistics.

Number of acres, 28,000; improved, 14,334; unimproved, 13,666; value of farms, $645,328, of stock, $83,348; of implements, $25,685; hay cut, 1,440 tons.

	Acres sown.	Bush. harvested.
Spring wheat	1,373	9,819
Winter wheat	1,127	7,205
Oats	2,396	25,783
Rye	19	172
Barley	303	2,740
Buckwheat	372	1,434
Corn	413	6,742
Potatoes	91	4,515
Peas	164	1,223
Beans	8½	69
Turnips	3	216

Apples, 10,024 bushels; cider, 108 barrels; maple sugar, 2,922 pounds; molasses, 168 gallons; honey, 2,583 pounds; wax, 79 pounds; neat cattle, 740; oxen, 99; cows, 618; butter, 50,693 pounds; cheese, 4,806 pounds; horses, 496; mules, 6; swine, 832; sheep, 5,220; fleeces, 9,887; wool, 31,874 pounds; poultry sold, $208; eggs, $313; full cloth, 208 yards; flannel, 392 yards; linen, 115 yards.

Manufactures.

Blacksmithing, $575; saw-mills, $26,800; turning, $600; feed mill, $3,100; brick manufacture, $1,500.

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Woodhull.

Woodhull was erected from Troupsburgh and Addison in 1828. It has Jasper and Rathbone on the north, Tuscarora on the east, Pennsylvania on the south, and Troupsburgh on the west. The surface is hilly and elevated, broken by small creeks into deep valleys; a large portion of the town is covered by forests, and lumbering is pursued quite largely. The soil is a clayey and gravelly loam, productive in grass and grain. Tuscarora creek runs east through the north part of the town, and forms the principal valley. Hedgesville, in the north part of the town, has ten houses. Newville is on the Tuscarora creek, and has a population of 215. The town was first settled in 1805, by Stephen Dolson, Bethuel Tubbs, Samuel B. Rice and Dan'l Johnson. The first grist mill was built in 1805, by Caleb Smith. The first inn was kept by Ichabod S. Leach; the first store by Josiah Tubbs; the first school by Abner Thomas.

Agricultural Statistics.

Number of acres, 33,000; improved, 11,852; unimproved, 21,148. Value of farms, $486,249; of stock, $89,948; of implements, $21,664. Hay cut, 2,465 tons. Grass seed, 86 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	996	10,355
Winter wheat	859	5,724
Oats	1,551	19,693
Rye	16	136
Barley	171	2,100
Buckwheat	492	4,454
Corn	349	7,774
Potatoes	130	10,035
Peas	102	924
Beans	10½	116½
Turnips	6	639
Tobacco	1	680 lbs

Apples, 3,174 bushels; cider, 32 bbls.; maple sugar, 5,169 lbs.; molasses, 131 gals.; honey, 6,389 lbs.; wax, 323 lbs.; neat cattle, 1,499; oxen, 289; cows, 911; butter, 112,445 lbs.; cheese, 4,745 lbs.; horses, 406; swine, 810; sheep, 2,330; fleeces, 1,401; wool, 4,477 lbs.; poultry, $379; eggs, $315; full cloth, 190 yds.; flannel, 710 yards; linen, 76 yards; cotton cloth, 168 yards.

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Manufactures.

Blacksmithing, $850; wagons and carriages, $1,200; grist mills, $2,500; saw mills, $16,980; boots and shoes, $500; tanneries, $3,600.

TOTAL AGRICULTURAL STATISTICS OF STEUBEN COUNTY.

Whole number of acres, 835,000; improved, 396,741; unimproved, 438,251. Value of farms, $17,994,630; of stock, $2,406,152; of implements, $680,403. Hay cut, 58,750 tons. Grass seed gathered, 1,926 bushels.

	Acres sown.	Bush. harvested.
Spring wheat	10,822	163,664
Winter wheat	33,768	219,590
Oats	51,170	731,307
Rye	1,331	10,212
Barley	8,430	78,873
Buckwheat	13,055	89,991
Corn	12,797	292,690
Potatoes	4,007	255,938
Peas	2,647	25,008
Beans	246	2,687
Turnips	203	22,545

Flax, 108 acres, 1,777 lbs.; flax seed, 306 bushels; hops, 13 acres, 8,649 lbs.; apples, 297,289 bushels; tobacco, 11 acres, 16,950 lbs.; cider, 4,580 bbls.; market gardens, 101 acres, products, $3,649; grapes, 47,400 lbs.; maple sugar, 112,287 lbs.; molasses, 3,665 gals.; wine, 5,600 gals.; brandy, 800 gals.; honey, 113,653 lbs.; wax, 5,430 lbs; neat cattle, 27,226; oxen, 4,351; cows, 20,284; butter made, 1,976,129 lbs.; cheese, 203,329 lbs.; milk sold, 18,756 gals.; horses, 13,899; mules, 40; swine, 14,154; sheep, 111,353; fleeces, 101,484; wool, 336,334 lbs.; poultry sold, $10,636; eggs, $14,678; full cloth made, 7,810 yds.; flannel, 16,903 yards; linen, 3,317 yards; cotton cloth, 6,906 yards.

Manufactures.

Agricultural implements, $3,000; plows and cultivators, $1,650; blacksmithing, $36,570; furnaces, $296,250; silver ware, $2,800; tin and sheet iron, $24,334; carding and cloth dressing, $2,300; asheries, $480; bakeries, $83,400; candles and soap, $200; distilleries, $15,500; gas manufacture, $3,000; malt manufacture, $25,000; oil mill, $900; painting and glazing, $6,000; boat build-

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ing, $4,200; sash and blind manufacture, $15,800; stone quarry, $1,500; coach and wagons, $78,549; feed mills, $3,100; grist mills, $710,384; cooper shops, $7,894; planing mills, $12,000; saw mills, $1,064,422; shingle factories, $22,506; turning shops, $1,100; brick manufacture, $11,000; lime manufacture, $8,750; marble manufacture, $6,100; plaster mills, $; potteries, $1,050; boots and shoes, $65,190; harness, saddle and trunk, $17,600; tanneries, $58,240; cabinet ware, $49,822; chair factory, $400; book binding, $1,500; daguerreotypes, $900; printing offices, $21,600; gunsmithing, $1,700; hats and caps, $1,500; millinery, $7,350; tailoring, $53,828; butchering, $7,500; tobacco and segars, $1,825; undertaking, $2,750.

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Agricultural Statistics of Steuben County for the year 1861.

Towns.	Meadow.			Spring wheat.			Winter wheat.		
	Acres of meadow.	Tons of hay.	Bushels of grass seed.	Acres sown.	Bushels harvested.	Any injury by midge.	Acres sown.	Bushels harvested.	Any injury by midge.
Addison	2,150	2,795	84	614	6,850	1/8	314	2,412	1/8
Avoca	2,414	3,295	104	1,244	13,394	1/10	439	4,415	1/10
Bath	5,940	7,749	194	1,954	25,612	1/10	1019	10,114	1/10
Bradford	1,791	2,540	58	815	6,720	1/8	314	2,890	..
Cameron	2,750	2,894	64	864	8,715	1/8	247	1,654	..
Campbell	1,956	3,174	157	560	6,795	..	230	2,491	..
Canisteo	2,427	2,956	25	894	14,154	..	212	1,675	..
Caton	2,397	2,754	167	415	5,678	..	194	2,176	..
Cohocton	2,194	2,378	46	1,441	13,964	..	264	2,387	..
Corning	1,517	2,135	34	878	8,319	..	105	1,294	..
Dansville	3,460	3,678	98	1,765	16,590	..	412	4,019	..
Erwin	1,040	1,294	53	514	5,917	..	112	1,460	..
Fremont	2,147	1,894	17	644	4,270	..	211	1,697	..
Greenwood	2,394	2,176	59	311	1,940	..	114	780	..
Hartsville	1,947	1,416	24	456	3,609	..	124	814	..
Hornby	3,694	4,920	294	1,210	12,960	..	211	2,347	..
Hornellsville	2,291	2,394	54	594	10,162	..	142	1,217	..
Howard	3,719	3,654	78	1,090	11,644	..	347	2,492	..
Jasper	3,578	3,164	47	515	4,947	..	184	1,724	..
Lindley	854	1,397	32	162	1,714	..	98	973	..
Prattsburgh	4,367	4,495	276	1,894	19,652	..	578	6,972	..
Pulteney	2,940	2,794	152	1,619	17,250	..	334	3,567	..
Rathbone	1,475	1,392	33	210	1,976	..	104	952	..
Savona	2,160	2,274	65	317	3,496	..	124	1,211	..
Thurston	1,427	1,564	79	459	5,672	..	94	875	..
Troupsburgh	4,995	5,274	98	511	4,864	..	132	1,156	..
Tuscarora	2,019	2,142	53	324	3,317	..	115	1,062	..
Urbana	3,940	4,170	27	1,819	17,640	..	347	3,964	..
Wayland	3,012	2,794	35	1,460	13,140	..	214	1,712	..
Wayne	1,973	1,894	52	859	7,927	..	235	2,940	..
West Union	1,865	1,272	49	194	1,652	..	63	482	..
Wheeler	2,798	2,564	32	1,272	10,650	..	419	3,741	..
Woodhull	3,741	3,964	97	946	10,117	..	216	1,974	..

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Agricultural Statistics of Steuben county—CONTINUED.

Towns.	Oats.		Rye.		Barley.		Buckwh't.	
	Acres sown.	Bushels harvested.	Acres sown.	Bushels harvested.	Acres sown.	Bushels harvested.	Acres sown.	Bushels harvested.
Addison	875	21,314	110	1,415	94	1,856	314	6,218
Avoca	1,840	30,114	94	1,128	512	6,794	275	2,114
Bath	3,640	60,224	241	4,820	1,595	7,984	944	5,150
Bradford	1,040	20,194	274	2,970	314	3,976	612	7,114
Cameron	3,117	47,112	65	764	230	2,475	494	1,760
Campbell	719	20,190	84	1,091	112	2,512	275	3,180
Canisteo	747	13,614	36	184	127	1,914	297	2,014
Caton	1,272	38,691	39	215	141	2,760	367	5,894
Cohocton	1,316	31,970	27	186	519	4,584	127	964
Corning	914	25,670	38	246	67	1,494	278	4,164
Dansville	2,550	36,112	110	1,640	394	4,750	311	3,970
Erwin	475	14,158	26	416	35	674	212	3,014
Fremont	1,494	19,672	35	237	260	1,970	419	1,856
Greenwood	1,674	23,560	67	679	38	346	511	7,111
Hartsville	757	12,219	15	27	65	719	256	1,944
Hornby	2,314	63,460	119	1,752	147	2,719	620	9,164
Hornellsville	769	10,974	19	217	78	712	240	1,419
Howard	4,270	52,190	28	146	694	7,327	756	4,327
Jasper	2,347	34,290	49	511	164	1,954	568	5,719
Lindley	484	12,840	33	247	47	964	187	3,815
Prattsburgh	3,419	43,718	53	1,460	864	9,872	853	7,650
Pulteney	1,440	18,975	113	1,975	469	4,587	894	7,967
Rathbone	519	13,114	27	264	127	1,932	519	5,014
Savona	674	15,190	87	987	192	2,684	615	7,918
Thurston	650	10,227	19	162	156	1,794	278	1,164
Troupsburgh	1,914	28,112	28	297	35	464	549	4,314
Tuscarora	527	12,214	23	271	65	727	532	4,127
Urbana	1,815	16,742	214	2,294	1,044	14,150	824	2,461
Wayland	1,409	19,972	137	1,960	198	22,146	216	1,972
Wayne	1,364	16,897	82	754	487	4,122	711	2,794
West Union	1,427	18,965	49	319	15	95	460	5,186
Wheeler	2,410	36,917	57	694	322	4,640	394	1,960
Woodhull	1,672	26,224	38	397	184	2,752	517	6,119

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Agricultural Statistics of Steuben county—CONTINUED.

Towns.	Corn.		Potatoes.			Peas.	
	Acres planted.	Bushels harvested.	Acres planted.	Bushels harvested.	Any rot.	Acres sown.	Bushels harvested.
Addison	412	15,940	124	14,190	some.	67	1,294
Avoca	560	19,112	135	15,114	much.	240	2,590
Bath	1,140	26,315	274	12,190	.....	120	1,150
Bradford	460	8,214	84	6,735	some.	5	114
Cameron	457	7,965	115	4,495	.....	94	1,014
Campbell	484	16,764	75	6,512	.....	28	379
Canisteo	512	17,874	137	7,895	much.	87	1,220
Caton	395	14,121	145	19,707	.....	27	561
Cohocton	675	15,190	167	8,194	.....	124	1,565
Corning	597	25,672	97	11,414	.....	25	450
Dansville	605	16,940	214	21,940	.....	194	2,004
Erwin	364	19,127	75	8,117	.....	32	864
Fremont	295	4,794	174	9,870	.....	164	1,757
Greenwood	194	3,716	126	5,890	.....	72	815
Hartsville	211	4,172	87	3,840	.....	62	514
Hornby	267	9,119	215	23,291	.....	52	964
Hornellsville	411	11,264	122	5,940	.....	87	824
Howard	447	12,194	264	15,178	.....	224	2,837
Jasper	297	5,164	156	7,918	.....	195	1,782
Lindley	312	14,146	64	7,314	.....	9	87
Prattsburgh	415	7,394	195	9,834	.....	267	2,590
Pulteney	587	6,978	112	5,562	.....	56	497
Rathbone	264	9,127	78	6,372	.....	39	327
Savona	297	12,674	114	6,197	.....	56	692
Thurston	175	2,991	80	3,319	.....	19	214
Troupsburgh	467	9,594	179	8,590	.....	227	2,396
Tuscarora	178	2,864	64	7,120	.....	32	314
Urbana	687	14,590	132	5,741	.....	27	311
Wayland	327	8,972	187	12,719	.....	119	1,274
Wayne	483	9,274	102	5,864	.....	18	98
West Union	183	3,719	162	8,327	.....	54	336
Wheeler	453	7,861	102	5,914	.....	187	1,569
Woodhull	382	9,164	138	11,143	.....	121	1,263

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Agricultural Statistics of Steuben county—CONTINUED.

Towns.	Beans.		Root crop.				Flax.		
	Acres planted.	Bushels harvested.	Acres sown.	Bushels turnips harvested.	Bushels beets harvested.	Bushels carrots harvested.	Acres sown.	Pounds lint.	Bushels seed.
Addison	27	550	36	1,200	650	1,790	--	----	----
Avoca	19	467	24	1,360	744	1,487	--	----	----
Bath	69	794	39	1,851	1,570	2,764	4	57	45
Bradford	24	198	17	950	274	790	6	73	62
Cameron	31	258	19	1,070	157	865	--	----	----
Campbell	17	153	22	1,565	214	1,964	--	----	----
Canisteo	27	284	15	678	97	815	--	----	----
Caton	39	425	18	764	106	1,052	--	----	----
Cohocton	21	311	37	1,675	294	1,967	5	64	51
Corning	42	673	29	1,460	112	1,678	--	----	----
Dansville	25	317	14	719	91	811	--	----	----
Erwin	19	136	21	1,027	84	1,262	--	----	----
Fremont	36	492	16	587	79	1,042	--	----	----
Greenwood	17	163	36	1,419	127	1,944	--	----	----
Hartsville	29	580	12	419	94	763	--	----	----
Hornby	44	386	25	1,016	121	1,478	--	----	----
Hornellsville	15	567	27	1,124	137	1,659	3	24	52
Howard	28	364	14	587	98	711	19	114	152
Jasper	25	387	16	672	112	594	--	----	----
Lindley	53	671	29	1,462	194	1,714	--	----	----
Prattsburgh	27	319	13	674	59	719	47	674	279
Pulteney	22	278	20	744	127	815	19	214	156
Rathbone	36	415	25	967	95	1,214	--	----	----
Savona	26	244	22	874	120	1,014	--	----	----
Thurston	37	311	19	759	114	965	--	----	----
Troupsburgh	33	291	26	944	162	1,415	--	----	----
Tuscarora	28	274	21	875	99	1,127	--	----	----
Urbana	29	314	27	1,014	144	1,267	17	109	94
Wayland	35	364	15	578	85	814	--	----	----
Wayne	15	127	12	415	79	675	--	----	----
West Union	19	164	39	1,565	194	2,760	--	----	----
Wheeler	27	269	21	1,140	127	1,014	--	----	----
Woodhull	38	394	24	1,460	117	1,272	--	----	----

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Agricultural Statistics of Steuben county—CONTINUED.

Towns.	Tobacco.		Bees.		Neat cattle.			
	Acres planted.	Pounds harvested.	Pounds honey.	Pounds wax.	Number oxen.	Number cows.	Other cattle besides calves.	Calves raised.
Addison	--	29	1,461	64	214	562	519	214
Avoca	--	------	2,570	85	110	875	727	378
Bath	--	------	5,127	357	228	1,460	1,214	619
Bradford	--	------	1,460	82	94	611	369	164
Cameron	--	------	4,567	394	168	619	675	250
Campbell	2	490	2,178	81	184	714	580	327
Canisteo	--	------	3,961	194	202	682	701	411
Caton	--	------	6,141	274	164	615	597	378
Cohocton	14	3,900	2,217	146	298	598	502	229
Corning	27	16,675	3,719	195	86	654	314	152
Dansville	--	------	3,564	587	178	896	917	395
Erwin	--	------	1,916	59	96	487	302	144
Fremont	--	------	3,675	106	78	564	405	279
Greenwood	--	------	6,519	422	188	814	717	468
Hartsville	--	------	1,417	46	164	562	367	372
Hornby	--	------	5,674	311	178	637	678	329
Hornellsville	--	------	3,971	192	144	612	599	311
Howard	--	------	7,112	314	250	1,216	1,002	612
Jasper	--	------	5,955	227	142	901	979	441
Lindley	--	------	2,719	102	88	317	252	187
Prattsburgh	--	------	5,617	239	114	1,014	919	598
Pulteney	--	------	5,919	374	90	719	765	394
Rathbone	--	------	2,617	127	128	567	219	275
Savona	--	------	2,117	151	156	619	527	427
Thurston	--	------	2,467	156	80	317	319	129
Troupsburgh	--	------	8,718	414	264	94	1,184	675
Tuscarora	--	------	2,567	122	124	728	567	411
Urbana	½	147	2,961	147	102	368	719	275
Wayland	--	------	2,001	74	278	819	614	527
Wayne	--	------	2,587	89	48	527	378	278
West Union	--	------	4,012	278	220	594	496	310
Wheeler	--	------	2,786	98	102	714	501	427
Woodhull	2	715	7,217	495	312	1,046	1,014	569

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Agricultural Statistics of Steuben county—CONTINUED.

Towns.	Beef.	Dairy.			Swine.	
	No. of beef cattle slaughtered.	No. cows milked.	Number pounds of butter.	Number pounds of cheese.	Number of hogs raised.	Number of hogs fattened & killed.
Addison	127	542	59,140	4,717	369	517
Avoca	106	804	86,051	50,372	472	722
Bath	290	1,207	102,317	15,270	768	1,164
Bradford	64	583	41,270	787	371	501
Cameron	198	556	75,115	3,110	147	640
Campbell	89	678	62,227	2,450	219	311
Canisteo	107	661	60,119	1,127	327	614
Caton	124	547	52,117	3,478	276	402
Cohocton	205	582	60,227	7,147	332	537
Corning	165	627	57,124	1,224	275	854
Dansville	174	882	86,144	19,672	684	927
Erwin	407	461	45,224	2,718	316	349
Fremont	401	534	50,224	2,448	224	378
Greenwood	79	801	78,460	3,727	158	412
Hartsville	384	517	51,617	3,224	174	285
Hornby	301	621	67,114	1,004	269	374
Hornellsville	48	595	57,224	1,871	315	419
Howard	161	1,144	136,711	14,792	578	945
Jasper	107	875	87,672	4,782	321	489
Lindley	194	301	27,789	672	154	274
Prattsburgh	207	978	119,611	8,640	572	714
Pulteney	184	702	71,617	6,170	498	569
Rathbone	106	552	52,711	5,227	265	311
Savona	205	601	61,674	2,697	317	416
Thurston	95	294	29,652	1,774	137	217
Troupsburgh	158	86	9,271	1,224	278	624
Tuscarora	114	695	68,529	4,678	195	236
Urbana	179	340	32,619	3,275	506	675
Wayland	285	792	76,112	4,167	374	754
Wayne	174	502	50,316	2,114	398	509
West Union	190	561	55,672	2,478	107	201
Wheeler	207	680	67,978	5,321	412	567
Woodhull	301	974	115,675	6,178	317	475

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Agricultural Statistics of Steuben county—CONTINUED.

TOWNS.	Sheep.			Poultry.	
	Number of sheep last spring.	Number of fleeces.	Pounds of wool.	Value of poultry.	Value of eggs.
Addison	2,564	1,917	6,721	$311	$494
Avoca	5,719	3,212	10,412	195	274
Bath	10,275	8,116	30,165	872	1,463
Bradford	3,140	2,145	7,532	265	387
Cameron	2,168	1,719	5,794	148	397
Campbell	1,974	1,246	3,678	274	501
Canisteo	1,744	1,564	4,872	199	365
Caton	2,560	1,978	6,570	476	916
Cohocton	3,744	3,711	14,714	278	612
Corning	1,464	1,398	3,819	145	473
Dansville	6,123	6,012	20,714	587	599
Erwin	1,587	1,214	4,160	121	278
Fremont	1,425	2,327	8,964	987	764
Greenwood	1,967	1,764	5,614	327	254
Hartsville	3,729	3,698	12,519	195	142
Hornby	3,256	3,241	11,315	597	811
Hornellsville	2,841	2,799	9,718	464	672
Howard	6,741	6,687	20,240	387	823
Jasper	3,498	3,394	11,814	521	194
Lindley	1,017	1,005	3,257	74	146
Prattsburgh	7,612	7,519	28,154	511	1,042
Pulteney	4,872	4,814	16,297	645	974
Rathbone	1,217	1,205	4,246	240	317
Savona	2,719	2,641	9,573	456	525
Thurston	1,276	1,257	4,467	295	419
Troupsburgh	5,640	5,549	21,275	511	233
Tuscarora	1,564	1,497	4,598	147	256
Urbana	8,714	8,682	30,384	714	824
Wayland	1,976	1,964	5,640	126	104
Wayne	3,654	3,625	13,717	495	684
West Union	1,347	1,311	4,240	273	295
Wheeler	5,419	5,397	24,271	251	344
Woodhull	2,711	2,672	9,640	397	352

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Agricultural Statistics of Steuben county—CONTINUED.

Towns.	Fruit crop.				Number of grape vines planted.	No. of horses on hand.
	Bushels of apples.	Barrels cider made	Value of grapes.	No. gals wine made		
Addison	9,514	125	.....	.....	.....	346
Avoca	20,510	378	.....	.....	.....	617
Bath	14,716	474	.....	.....	.....	1,054
Bradford	6,211	105	.....	.....	.....	372
Cameron	3,122	47	.....	.....	.....	461
Campbell	10,270	320	.....	.....	.....	344
Canisteo	6,140	107	.....	.....	.....	387
Caton	4,240	12	.....	.....	.....	362
Cohocton	11,714	149	.....	.....	.....	584
Corning	6,521	214	$150	.....	.....	412
Dansville	12,114	104	.....	.....	.....	817
Erwin	2,127	59	50	.....	.....	227
Fremont	12,317	102	.....	.....	.....	525
Greenwood	2,901	15	.....	.....	.....	315
Hartsville	5,111	27	.....	.....	.....	238
Hornby	12,672	261	.....	.....	.....	397
Hornellsville	5,114	107	.....	.....	.....	364
Howard	21,224	209	.....	.....	.....	857
Jasper	3,725	62	.....	.....	.....	465
Lindley	4,170	245	.....	.....	.....	142
Prattsburgh	10,620	102	.....	.....	.....	874
Pulteney	5,320	114	540	.....	.....	720
Rathbone	3,604	59	.....	.....	.....	314
Savona	5,270	101	.....	.....	.....	411
Thurston	2,121	10	.....	.....	.....	179
Troupsburgh	6,195	52	.....	.....	.....	506
Tuscarora	2,317	86	.....	.....	.....	317
Urbana	9,714	204	4,000	5,600	25,000	594
Wayland	3,178	35	.....	.....	.....	519
Wayne	5,640	121	.....	.....	.....	372
West Union	1,070	32	.....	.....	.....	187
Wheeler	7,160	94	.....	.....	.....	524
Woodhull	2,387	38	.....	.....	.....	461

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PART VI.

FRUITS.

The pioneer settlers of some of the towns of Steuben county, were careful to bring with them slips and seed of fruit trees, which they planted in their new homes; hence we find through the older orchards, either the seedlings or the growth from *grafts* and *buds* of the varieties of fruits growing at their eastern homes. The Seek-no-further, the Spitzenburgs, the Rhode Island greening, the russet, and the bellflower, comprised the assortment of these primitive orchards, except perhaps some common crabbed fruit for cider, and a sweet apple tree or two for "*apple butter.*"

"Grafters and budders" were accustomed to make their appearance through the new settlements, offering to set new and improved varieties upon the seedling stocks, by means of which many plantations were improved, and quite a number of farmers were egregiously *humbugged.* Following these, were agents, and "fruit tree pedlars," who received orders for young trees, selected from *pretentious* catalogues, to be delivered at the doors of the purchasers, from *extensive* and *reliable* nurseries. A great many orchards have their derivatives from this source, showing a checkered appearance of thrift and disease, of *fictitious* and of *truthful* nomenclature.

In some towns enterprising individuals were found who raised seedlings, procured buds and grafts of known approved fruits, and cultivated nurseries for their own and their neighbors' benefit; from this, we date the best and most profitable of all the orchards in the county.

In the town of Pulteney, on the borders of Prattsburgh, Mr. Jesse Waldo planted a nursery, and supplied the adjacent neighborhood with good fruit. Through his instrumentality the fruits of the surrounding towns were improved, so that, at the present day, they stand first of all the products of the county. We record the fact, *in memoriam* of Mr. Waldo's enterprise and usefulness, and of the benefits all are enjoying therefrom.

In the town of Urbana, Mr. T. M. Younglove, cultivated a nursery, from which plantations have been made of fine fruits. The finest "Hawleys" we have ever seen, came from his place. At the Painted Post, there was also a nursery, from which the valley of the Canisteo received a supply.

The soils of the county are generally adapted to the cultivation of the apple. The hills and slopes afford a natural drainage,

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and the gravelly loams of the valleys are naturally modified so as to produce a fine growth. There are but few locations in which the apple tree seems to be stunted by a cold ungenial soil, or tressled with moss by a frosty climate. Some of the highest hills in Troupsburgh and Jasper, may present these unfavorable features.

In the towns of Prattsburgh, Pulteney, Wheeler, Bath, Urbana and Erwin, large quantities of fine apples are grown. The SUMMER varieties commence with the "bough," sour and sweet; the "Harvest;" the "Early Joe" begins to produce, and promises to become a great favorite. The FALL varieties grown are the Hawley, the Fall pippin, Gravenstein, Jersey sweet, Porter and Rambo; of the above, the Hawley and the Porter produce the best, and more abundant. The standard winter apples are the Greening, Seek-no-further, Spitzenburg, Baldwin, Russet, Waggoner, and Wine apple. The Waggoner is noted for its keeping qualities long after the other varieties have decayed; the Wine apple is prized for its sprightly delicious flavor in December and January; the Greening for cooking and preserves. Of the greening variety, there is grown a "compound apple," half sweet and half sour, or sometimes all sour but an eighth, or a quarter, that being sweet; or may be all sweet but a quarter, or an eighth, which is sour. With this exception it possesses all the characteristics of the greening. It is a fine table apple; a mouthful of sour, and sweet, alternately, produces a most agreeable mixture. It surpasses any thing of the apple variety.

In but a few towns of the county, and these yet in the lumbering process, where little or no attention is paid to the cultivation of orchards, improved varieties of fruits have not been introduced.

PEARS are not as generally cultivated in the county as their importance in the market demands. A few varieties are grown in some gardens at Bath, Corning, Painted Post, and in the Pleasant Valley, in Urbana. The Bartlett, Duchess d'Angouleme, the Virgalieu and Bergamot, are the principal varieties propagated. The association at Hammondsport, promises much in the way of encouraging the cultivation of the pear, and we hope to see it extended wherever the soil and temperature favor its maturity. As the pear will grow on almost any soil, where there is a perfect drainage, it should receive more attention at the hands of our farmers generally.

PEACHES grew abundantly when the country was new and the

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ground full of the roots of the original forests, acting as drains to carry the surface water into the substrata, and as tubes through which the rootlets could draw moisture in dry weather. The cultivation of the peach is exceedingly limited of late. It is said, indeed, it will not produce on the hills of the county. This, however, is a mistake.

Where the soil has been thoroughly tilled and enriched, the peach will grow, provided a thorough tillage is continued. The tree requires the same care and culture as corn; with this, it will grow and produce in favorable locations.

It is a singular fact that, in our river and creek valleys, the peach will not produce as well as on the side hills. The hills are not subject to the extremes of temperature, which injure the fruit in the valleys. The most favorable locations for the peach, in the county, are at Hammondsport; in Pulteney, on the west shore of the Crooked Lake; some fair peaches are grown at Bath, at Avoca, and at Prattsburgh. The varieties grown are those that mature early, such as the Rareripes, Early York, Newington and Crawfords.

Cherries used to be planted along the road fence, and thick groves would spring up, and grow and bear fruit, presenting the beautiful sight of old and young, parent and offspring, thriving and producing together, in one dense group. These by-gone days of the clustering Morellos have given place to the Dukes, Hearts and Bigarreaus, in which size, flavor, and color have usurped the place of abundance and profusion. The varieties generally grown are the Tartarian, May Duke, Downer's Red, Heart, and Yellow Spanish. Fine fruit, of the above varieties, are grown in Bath, Prattsburgh, Urbana and Corning. In other parts of the county are found a few isolated trees of the Tartarian, Morello, and May Dukes. At Hornellsville and Canisteo, a few of the choice Bigarreaus are cultivated in gardens, and produce juicy and delicious fruit. There is scarcely any section of the county, in which the cherry cannot be made a standard fruit from which profitable yearly returns may be realized. Any of the varieties can be easily grown, as the tree is hardy, and productive, and, were due attention bestowed upon the cultivation, *this* pleasant and healthy fruit would become as common among farmers as its scarcity is now the general complaint.

The black knot has become a disease which now infects the cherry tree, in some places, threatening its total destruction; but

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due care and attention in cutting down every tree infected, will soon exterminate the disease.

PLUMS were suffered to be injured and destroyed in the same way, until scarcely a plantation existed free from this blighting influence. The curculio girdled the root while the insect stung the branches, poisoning the sap, and as a consequence the plum was not produced, or if produced, it was a defective, inferior fruit.

Except in some gardens, in our villages, and on our farms, where the proprietors and occupants bestow attention to the culture of the plum, the fruit is not grown to any amount, or of a grade of any value.

In the towns of Prattsburgh and Pulteney, on the hills between the Five Mile Creek and Crooked Lake, a *Yellow gage* has been grown in great abundance. The tree of this variety has been very productive, the fruit of medium size, flesh yellow, and very rich. The same plum is found in Cohocton, Wheeler, and Howard.

The Egg plum is a failure in our county; is liable to rot before ripening. The Washington plum succeeds in some warm valleys, as at Bath, Hammondsport, Avoca, Hornellsville, and Corning. The Purple gage, and Imperial gage, are found in some gardens flourishing under particular culture; and in a few instances are grown the "*Huling's Superb.*"

The plums, however, generally grown are the Blue gage, the Yellow gage, and the common Damson.

QUINCES are not generally grown in the county. In this respect there is a marked difference between Steuben, and Ontario and Yates. In the latter counties the quince is exceedingly productive. There is something in the soil, or climate of Steuben, uncongenial to the quince, and with the exception of a few favored places, this fruit is not produced. The apple and pear quince are the varieties grown.

Apricots and *Nectarines*, are not grown in any quantity in the county. These fruits require a high temperature to produce them to perfection; a succession of warm, sunny days to give them the peculiar rich, juicy, sweet flavor, which may be termed their *mature perfection*. A few gardens in Hammondsport and Bath, produce them.

Currants are grown upon every farm, in great abundance. The common red is the variety cultivated, or rather permitted to grow

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throughout the towns. This small fruit, producing uncared for, and untilled, in so great profusion as to furnish the table through summer and early autumn, with small care and culture is readily improved in size and flavor; and where that is bestowed, a rich return is realized therefor. The "White Dutch" and "Grape" are grown in some places.

GOOSEBERRIES are easily grown in all parts of the county. The soil and climate seem to be peculiarly adapted to their production. There is a native variety found in the woods producing quite good fruit. A few bushes are found in every well cultivated garden, and their yield is *profusion.*

BLACKBERRIES grow along every hedge, and through every half tilled field. In some seasons the crop is exceedingly abundant, and the grade very fine. The common variety is the *high blackberry.* The Lawton and Dorchester are cultivated in some gardens.

RASPBERRIES, such as the black and the red, are natives of our soil, and produce fine crops. Every farmer can have them, in their season, for the picking. The Fastolf and the Antwerps, are cultivated successfully, where the precaution is taken to cover the vines with litter through the winter. They are gross producers, and great favorites.

The STRAWBERRY is found growing wild in all parts of the county, upon the highest hills and in the lowest valleys. The wild strawberry has a fragrance, a sweetness, and a flavor, the combination of all lusciousness known to no other. Let him who doubts go to the hills of Jasper and Troupsburgh, and taste the wild berries growing thereon, to be satisfied of the fact. Aside from the wild, there are grown the Hovey, the Wilson's, the Hudson, and the Monroe scarlet; all of them growing large, with tender flesh and good flavor.

In the town of Caton, CRANBERRIES have been successfully cultivated, and promise to become very profitable. Mr. NOBLE HILL is deserving of notice, as having introduced the Cranberry, and demonstrated its adaptation to the soil and climate of that town. He has succeeded in commanding the first premium at our county and State fairs.

There is a wild cranberry indigenous to our low marshy grounds, producing quite fair fruit. These cultivated, are much improved in size and flavor. There is a growing attention being paid to the cultivation of the Cranberry.

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PART VII.

AGRICULTURAL ECONOMY.

Farming upon new lands required but little attention to the wants of plants, as the virgin soil contained all the materials for their growth and maturity. Trees were cut down, the rubbish burnt, the grain sowed and "brushed in," the crop grew and yielded a plentiful harvest. Again, the ground was scarcely scarified, and a succeeding crop matured, producing full returns. Thus continual harvests have, in the course of time, gradually withdrawn from the soil its constituents for vegetable growth, and a diminution of crops followed, until the farmer began to inquire: In what way can the land be restored to its original fertility? In pursuing this inquiry, one fact became patent: If the supply furnished the land be insufficient, increased sterility was the consequence. If sufficient to replace what had been removed, the soil produced equally with former crops. If more was supplied, the fertility of the soil was increased, and more productive crops followed. Hence fertilizers and manures were resorted to, for the purpose of replacing the constituents of the soil which had been carried off by former crops.

The *manure* most readily at hand was that of the barn-yard—the excrements of cattle. These were thrown upon the soil in a way quite primitive, and without any definite knowledge of their particular virtues. The *crude* dung heap was drawn out and spread over the soil, or plowed under, often to the injury of the succeeding crop, when, if due preparation and mixture had been made, the result would have been different.

It should be borne in mind by the farmer, that the design of manuring is to induce a more vigorous growth and productiveness of crops; to obtain this object, the manures used must contain such constituents as the crops require for their development, so as to supply that of which the soil is deficient. If the soil is wanting in phosphates, the manures used should contain that constituent. If the deficiency be in sulphates, a different manure is wanting.

It is essential, therefore, that the agriculturist study the constituents of his soil, the requirements of his crops, and the virtues of his manures, to manage his farm economy intelligently and successfully.

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The constituents of *fresh horse's dung* are as follows: 5 phosphate of lime, 18.75 carbonate of lime, 36.25 phosphate of magnesia, 40 silicic acid=100.

Cow's dung, 10.9 phosphate of lime, 10 phosphate of magnesia, 8.5 perphosphate of iron, 1.5 carbonate of potass, 3.1 sulphate of lime, 63.7 silicic acid, 2.3 loss=100.

The fertilizer generally purchased by our farmers for their lands is GYPSUM (sulphate of lime.) This is sown broadcast over the fields for grass and grain crops, and sometimes rolled and mixed with the seed of cereals. As a fertilizer for grass, it probably cannot be excelled; it serves directly for its nourishment, and it fixes and retains in the soil certain substances which are necessary to its nutrition and growth. Where the crops require an addition of *sulphates*, gypsum is useful, as it will transform the *carbonate* of ammonia into *sulphate* of ammonia, thus changing all the *volatile* salt contained in rain water and in the decomposition of animal substances into a *non-volatile* salt, which remains in the soil as food for plants. *Lime* has been used, to some extent, as a fertilizer. It is generally slacked before it is applied to the soil, as in that state it can the more easily be scattered over the soil. In this state it is termed *a hydrate*, and is highly beneficial to all *cereal* crops.

Instances have been known in which the application of lime has greatly increased the wheat crop, and rendered lands productive in that grain, where previously they were incapable of yielding an abundant or even a remunerating crop.

In the hill country of our several towns, the application of lime is very beneficial, whether spread over the surface of grass lands or applied at the time of seeding; it never fails to call into existence the dormant seeds of the superior grasses in the soil, and to nourish and facilitate the growth of crops sown by the agriculturist. Upon clay soils, the action of lime is both as a fertilizer and chemically, in *comminution* of the soil, destroying the continuous solidity of the clay, rendering it open and porous, and better adapted to produce vegetable growth. *Ashes* have been applied as a fertilizer, not only to grass lands, but also to grain, with marked advantage. The favorable effects of wood ashes have long been known, and their application has been general throughout the county. As a fertilizer for grass, ashes are preferred to gypsum, and to stimulate the growth of corn it is unequalled. It has been sown over the wheat, barley and oats

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with great profit; probably no application has been more successful in the cultivation of the cereals.

There is little or no *bone manure* used among our farmers; they are habitually cautious of purchasing the fertilizers advertised under *pretentious* names, and consequently hesitate to experiment on *manufactured* manures. There is no doubt, however, but *bone manure* may be applied with great advantage to our cereal crops. Bones contain 55.45 parts of phosphate of lime in 100, and consequently are beneficial in supplying that constituent to the soil. *Guano* is used to a limited extent by some of our farmers. It is beneficial to crops requiring for their growth and maturity a supply of *phosphates*, as it contains about 25 per cent. of that constituent. The high price of guano prevents its general use in our county, though probably its effects might prove quite remunerative.

The attention of our farmers has been directed, of late, to deposits of *marl*, from which to obtain manure for land. Some of these marl beds superabound in lime, others in alumina, and are termed *lime* marl, or *clay* marl, as one or the other of these predominate. The usual practice among our farmers, in its application, is to draw it out into heaps, to lie there until it crumbles into a powder by the action of the atmosphere, when it is spread over the land. Its action upon vegetation consists, chiefly, in mechanically improving the soil, and restoring to it some constituent in which it may be wanting.

UNDERDRAINING has been generally neglected throughout the county, though its necessity has been usually acknowledged. Farmers have tilled fields and raised crops upon land where *thorough draining* should have preceded all tillage. They have manured and fertilized without advantage, reaping poor crops, simply because they have mistaken the *order* of farm economy.

It will ever be in vain to look for good crops, of either grain or grass, until the land has been drained of all superfluous moisture. This ought, in all cases, to be the *initiative* of tillage, unless a disposition prevails to let wet soils alone, to throw up useless and noxious grasses, and to exhale malaria destructive of all vegetation.

We have in our county some enterprising farmers, who have thoroughly drained their lands, and restored wet holes and boggy swamps to profitable fertility, in some cases making the first crop pay all the expenses. If our farmers, generally, would consider

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the effects of draining in improving the fertility of their lands, and consequent increase of crops, they would bestow more attention to this most necessary department of agricultural economy.

FENCES.—In all new countries, where timber is abundant, the fences are generally constructed of logs, poles and rails, put up in the most rough and careless manner; after the country has been cleared up, stump fences, stone walls, post and rail fences, and board fences follow, according to the fancy or convenience of the occupant.

In all the towns of our county, the fences generally are the "worm rail fence;" the timber being convenient, rails are easily split and the fence quickly put up. In some places, where the stumps have been pulled, they have been drawn into fence. The stump fence, well made, possesses peculiar advantages. It will not blow down, cattle cannot throw it down or break over it. It is durable, reliable and efficient. The farmer, with enclosures of stump fences, can sleep sound o' nights, his crops are safe from "breaches," his cattle from "estraying." Stump fences are quite ornamental, inasmuch as they combine all the beauties appertaining to the *adaptation of means to an end.*

Stone walls are found where the material is convenient, which is not generally the case. They are quite durable and reliable, but where sheep are kept they require to be capped with rails to prevent them from jnmping over. *Post* and *rail* and *board* fences are found at and about our villages and farm houses, where the citizen has become somewhat *nice* about appearances, and wishes to be thought somewhat polished of *rusticity.* The *old* farm houses are generally surrounded by the original rail fence, with perchance a "pair of bars," or a wicket gate, but the *new* farm houses always sport a *board* or *picket* fence, painted white, all in keeping with the improved order of things. The door-yard begins to exhibit rows and beds of flowers, and the *bloom* of cultivation usurps the place of negligent rusticity. The FARM BUILDINGS throughout the county are generally much improved from those of former days; most of the dwellings are new, *of the "farm cottage" style,* and generally painted white. The barns and sheds are enlarged, so as to shelter the cattle and other farm stock. In this we note a great improvement. Formerly the farm stock were compelled to seek shelter the best they could, under the lee of the barn or hay-stack; now they participate, with their owners, in all the comforts and enjoyments of civilization. In

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no one thing does our county exhibit improvement greater than in this, that both farmer and his stock are more comfortably and respectably housed than in by-gone days.

The *in-door* economy of the farm-house has been greatly improved, as to comfort and appearance. The furniture assumes more the appearance of taste and convenience, and in many instances, of style unknown to former days. Go to any town in Steuben county, and you will find our farm-houses furnished in all respects with every appliance for convenience, comfort and for taste.

It may be that our progress has been too rapid in assuming the habiliments of fashion and of show, but let that be as it will, no men toil more to procure their enjoyments than the farmers, and no men deserve to live better in all respects, or to enjoy themselves more than they. We record, with pleasure, the fact that with the general advance in all the advantages and comforts of refinement, our farmers keep equal pace with others in every occupation of life.

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FINE WOOL SHEEP HUSBANDRY.

By Henry S. Randall, L.L. D.

In rising to read this paper on the sheep of our country, prepared at the request of your President, I cannot fail to have it forcibly recalled to my memory that twenty-five years ago this very month, at the annual meeting of the old New York State Agricultural Society, in this city, I was appointed chairman of a committee of breeders to draw up a report on the same subject; and that, twenty-four years ago, I read that report before the Society.*

On that occasion I was aided by the far riper experience of some of the most eminent breeders of our State, and might therefore without presumption, embody their knowledge in respect to breeds with which my own acquaintance was limited.

Having no such assistance now, I shall confine my descriptions chiefly to those varieties of which I can speak from an ample personal experience. These include the Merinos which, at various periods, have been imported from Spain, France and Germany into the United States.

The inquiries of your President embraced the following topics: The origin of the Merino; its varieties; its introduction into the United States; the circumstances which have affected its success; the comparative profitableness of its varieties; the expediency of crossing between varieties and the effects of in-and-in breeding; the proper mode of selecting a flock; the art of breeding; the present course of breeding in the United States; and suggestions as to the future of the fine wool husbandry in our country.

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* It was published in the Cultivator (Albany) March, 1838, and extracts from it in the present Society's Transactions, 1841.

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The Spanish Merino.

The origin of this animal is involved in obscurity. The commonly received account is, that Columella, a Roman who resided near Cadiz in the reign of Claudius, coupled fine wool Tarentian (Italian) ewes with wild rams brought from Barbary, and thus laid the foundation of the breed; that some thirteen centuries after, Pedro IV. of Castile, improved it by a fresh importation of rams from the same country; and that two hundred years later still, Cardinal Ximenes a third time repeated this ameliorating cross;—from which period, we are left to infer, the breed became established about as it was found when it first began to attract the special attention of foreign nations in the seventeenth century. All the early varieties of Africa had long, straight, hairy wool, like the present long-wooled sheep of England, and no writer, ancient or modern, has pretended that the rams imported from that country into Spain, were any different in this particular. How recurring crosses between such animals and fine wooled ewes should have commenced, improved, and finally fixed the characteristics of a breed like the Merino, is a problem which admits of no rational solution to a practical sheep breeder.* This pedigree is probably entitled to about as much confidence as that which the Greek poets gave to the wonderful ram which bore the "Golden Fleece." He, according to this very respectable authority, was got by the sea-god Neptune, dam the nymph Theophane.

The only well settled facts on this subject—and fortunately they are quite sufficient for all practical purposes—are, that at a period anterior to the Christian era, fine wooled sheep abounded in Spain; that they were preserved and made themselves heard of in the channels of trade and the domestic arts through all the conquests, re-conquests, and other sanguinary convulsions of that kingdom; that they were, or gradually ripened into, an exclusive breed unique in its characteristics, and essentially unlike all other breeds in the world.

When the Merinos of Spain first attracted the observation of

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* Strabo, who was a contemporary of our Savior, and who consequently lived a generation earlier than Columella, says that the fine cloths worn by the Romans in his time were manufactured from wool brought from Traditania, in Spain. Pliny, himself Governor of Spain, writing just after Columella's time, describes several fine wooled varieties in that country which must have existed there a long time anterior to Columella. The Barbary crosses undoubtedly were made with, or formed, the Chunah or long-wooled breed of Spain, which is altogether distinct from the Merino.

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other nations, they were found scattered over most portions of their native country, divided into provincial varieties which exhibited considerable differences; and these again were separated into great permanent flocks or cabanas, as the Spaniards termed them, which had so long been kept distinct from each other and subjected to special lines of breeding, that they had acquired the character of sub-varieties or families.

Varieties and Sub-varieties in Spain.

The first division recognized in Spain was into Transhumantes or traveling flocks, and Estantes or stationary flocks. The first were regarded as the most valuable. They were mostly owned by the King and some of the principal nobles and clergy, who at an early period fastened on the kingdom a code of regulations which sacrificed every other agricultural interest for the convenience of the proprietors of these sheep.*

The system of Spanish sheep husbandry is a curious and not uninstructive leaf from the records of the past, but does not come within the scope of this paper. It will be found described with sufficient fullness by Mr. Livingston, whose valuable "Essay on Sheep," now recognized authority throughout the world, was laid before the New York State Agricultural Society in 1809."†

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* These will be found described in detail by Lasteyrie, Livingston and other writers. The sheep were driven from the southern provinces in April or May, according to the weather, to the mountains in the north of Spain, a distance of about four hundred miles, and driven back again in the autumn, generally leaving the mountains towards the close of September and through the month of October. The Tribunal (Consejo de la Mesta) which both made and administered the laws which regulated their transit, was composed of the rich and powerful flockmasters. The following remarks are from Lasteyrie's most valuable Treatise on Merino Sheep:

"A Spanish writer, Jorvellanes, in a memoir addressed to the King of Spain, says 'the corps of Junadines (proprietors of flocks) enjoy an enormous power, and have, by the force of sophisms and intrigues, not only engrossed all the pastures of the kingdom, but have made the cultivators abandon their most fertile lands: thus they have banished the stationary flocks, ruined agriculture, and depopulated the country.' It is easily conceived that five millions of sheep traversing the kingdom in almost its whole extent, for whom the cultivators are compelled to leave a road through their vineyards and best cultivated lands of not less than ninety yards wide, and for whom, besides, large commons must be left; I say, it is easily conceived that such a flock must greatly contribute to the depopulation of the country, and that the revenue that the King draws by the duty on wool is snatched from the bread of his people."

† I have thus termed the Society, because it will convey a more correct impression to many readers of the present day, than to give it its actual designation, which was, "The Society for the Promotion of Useful Arts." It was the lineal ancestor of our present organization.

Robert R. Livingston, LL. D., Secretary of Foreign Affairs under the American Articles of Confederation, Chancellor of New York, &c. &c., went as American Minister Plenipotentiary

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Livingston makes the following territorial classification of the Merinos in Spain at the opening of the present century: "Castile and Leon has the largest with the finest coats. Those of Soria are small, with very fine wool. Those of Valencia, which, like the last, do not travel, have fine wool, but a very short staple."

The Leonese Transhumantes, considered the best sheep of Spain, were the only ones which ever attracted much foreign notice, and they composed the principal importations into the United States. Some of the most esteemed families of them were thus briefly characterized by Lasteyrie, one of the best informed* and most reliable writers, early or late, in respect to the Merino:

"The Escurial breed is supposed to possess the finest wool of all the migratory sheep. The Guadeloupe have the most perfect form, and are likewise celebrated for the quantity and quality of their wool. The Paulars bear much wool of a fine quality; but they have a more evident enlargement behind the ears, and a greater degree of throatiness, and their lambs have a coarse, hairy appearance, which is succeeded by excellent wool. The lambs of the Infantados have the same hairy coat when young. The Negretti are the largest and strongest of all the Spanish traveling sheep."†

The Merinos, as they appeared as a race at the opening of this century, are thus described by Livingston:

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to France in 1801. He there gave much attention to the Merinos preparatory to an importation of them. He is an able, and in matters of fact, extremely reliable, writer. He was one of the most spirited and influential agricultural improvers in our country, and is never to be forgotten as the patron and coadjutor of Fulton.

* Lasteyrie traveled into every country in Europe, where the Merinos had been introduced, to ascertain how the experiment succeeded and to observe the effect of the different climates and systems of management on the animal.

† Livingston's descriptions coincide with these, except that he says that the Paulars have "similar fleeces" with the Guadeloupes, and are "longer bodied."

These celebrated flocks were the property of individuals or of religious orders. The Escurial flock belonged to the King, until Philip II gave it to the friars of a convent attached to the Escurial palace. The Paulars were purchased by the Prince of Peace of the Carthusian friars of Paular. The Negrettis were owned by the Conde Campo de Alange—the Infantados, Aqueirres, Montarces, etc., to the nobles of those names.

Hon. William Jarvis, of Vermont, hereafter mentioned as a conspicuous importer of Merino sheep into the United States, in a letter to L. D. Gregory, which was re-published in Morrell's American Shepherd, (pp. 71–76,) describes the Spanish cabanas somewhat differently. But his opportunities for judging, good as they were, were not equal to those of Lasteyrie, and Mr. Jarvis wrote some years *after* he had seen any pure bred animals of the separate cabanas. Lasteyrie's description is adopted by some eminent writers, familiar with the Spanish sheep near the opening of this century, and I do not remember to have seen it contradicted by any European author of reputation. Like all the descriptions of animals by writers of that day, it is, however, exceedingly meagre and vague. But I do not think the writers of that day considered the distinctions between a few of the best cabanas as of much importance—regarding them as about equal in value.

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"The race varies greatly in size and beauty in different parts of Spain. It is commonly rather smaller than the middle sized sheep of America. The body is compact, the legs short, the head long, the forehead arched. The ram generally (but not invariably) carries very large spiral horns, has a fine eye and a bold step. The ewes have generally no horns. The wool of these sheep is so much finer and softer than the common wool, as to bear no sort of comparison with it; it is twisted and drawn together like a cork screw; its length is generally about three inches, but when drawn out it will stretch to nearly double that length. Though the wool is, when cleaned, extremely white, yet on the sheep it appears a yellowish or dirty-brown color, owing to the closeness of the coat, and the condensation of the perspiration on the extremities of the fleece. The wool commonly covers great part of the head, and descends to the hoof of the hind feet, particularly in young sheep; and it is also much more greasy than the wool of other sheep."

To supply data which will enable any one curious on the subject to make some practical comparisons between these sheep and their descendants in the United States, I select the following, from a more extensive table by Petri, who visited Spain in the early part of this century for the express purpose of examining its sheep: and I add similar admeasurements of American Merinos:

NAMES OF FLOCKS.	Weight, including wool.	Length from mouth to horns.	Length from horns to shoulders.	Length from shoulders to tail.	The whole length.	Circumference of the belly.	Height of the fore legs.	Height of hind legs.	Distance of hipbones apart.
NEGRETTI.	lbs.	inc.	ft. in.	ft. in.	ft. in.	ft. in.	ft. in.	inc.	inc.
Ram	97	9¼	1 7	2 2	4 6½	4 1½	1 3	10	6
Ewe	67	8¼	1 5	2 1	4 2½	4 1½	1 1	9¼	4½
INFANTADO.									
Ram	100½	10	1 6	2 3	4 7	4 2	1 0	9	6
Ewe	70	9	1 5½	2 1	4 3½	3 11	1 0	8½	5½
GUADELOUPE.									
Ram	97½	9	1 6	2 2	4 5	4 5½	1 0	8	6
Ewe	69	9	1 2	2 1	3 11	3 9	10½	6¼	4
ESTANTES OF SIERRA DE SOMO.									
Ram	96½	9½	1 6	2 0	4 3½	4 2½	1 0	8	6
Ewe	62½	9	1 2	2 1	4 0	3 10	11	7	5
SMALL ESTANTES.									
Ram	42	7½	1 3	1 9	3 7½	3 2	10	6½	3
Ewe	30	7	1 1	1 6	3 2	2 10	8	6	3
AMERICAN MERINO.									
Ram	122	9	10	2 4	3 11	4 4½	11	9	9
Ewe	114	9½	10	2 4	3 11½	4 1½	11	9	8
Ewe	122	9	10	2 5	4 0	4 3	9	9	8
Ewe	100	9	11	2 3	3 11	4 ½	8½	8	8

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These weights and measures, except those of the American sheep,* are Austrian. The Austrian pound is equal to 1.037 lbs. avoirdupois; the Austrian foot to 1.234 English feet.

Mr. Livingston, in describing the Spanish Merino of his day as compact and short-legged, took for his standard of comparison, doubtless, the gaunt, tall sheep of America; and Col. Humphreys' description, sent to the Massachusetts Society for promoting Agriculture, requires the same explanation. Most British writers, with their eyes on their own mutton breeds, fall into the opposite extreme. Petri's measurements show that the Spanish sheep were far less compact than their American descendants, though they ran to no extraordinary excess in the opposite direction.

We should gather the impression from Livingston's remarks—and Humphreys expressly says—that they were broad chested.† Compared with other sheep, or their own descendants of the present day, this was quite otherwise. The concurrent testimony of both writers and observers who had more practical acquaintance with the points of an animal's carcass than either of the above distinguished gentlemen, as well as my own observations thirty years ago, when our own Merinos had been bred closely to the original model, show that the Merino of Spain was decidedly

* The American Merino ewes were taken from one of my flocks composed of sheep of good medium size, and I think they were a little heavier than the average of the flock. They were weighed, &c., in Dec. 1861, and had been sheared only five months—so that their weights did not, like the Spanish, include full fleeces. They were in good ordinary condition, and no more. The same is true of the ram. He is a small, short animal for one of his family, but has great substance, and is specially prized for the uniformity of his offspring, for their low, broad, beautiful forms, and for the great length and thickness of their wool. His own fleece has reached to about 21 lbs. In other respects there was nothing unusual in the appearance or form of any of the four; and their shape, &c. would about correspond with that of the flock they were taken from, or that probably of any other prime full blood flock in the country. The ram was 25 inches high on the shoulder, the ewes about 23 inches each. I wish Petri had given the heights of the Spanish sheep. When the difference in weight is taken into account, it is remarkable that there should be no greater difference in the "circumference of the belly" between the Spanish and American sheep in the table; and one would infer that a good portion of the weight of the former must be made up of a belly so disproportioned in size. But I have no doubt that Petri measured their circumference in full fleece and without any compression of the wool. I shall reserve any further comparisons until I describe the improved American Merino.

† "The neck short, the chest broad. The members more compact and thick than those of our former breed of sheep; and the carcass is thought to have smaller bones and to be more rounded in the hinder part."—[*Col. Humphreys' Letter to Mass. Society for promoting Agriculture.*

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a narrow chested animal.* But what he thus lost in symmetry was made up, so far as room for the lungs and other viscera was concerned, by his great depth of carcass. In these respects he was to the English mutton breeds what the Spanish barb was to the thick winded English dray horse: and he exhibited a corresponding superiority in locomotion and energy.†

Mr. Livingston unquestionably wrote from a vague recollection, or at least without making actual admeasurements, when he stated the length of the unstretched Spanish wool at three inches. The Spanish breeders intentionally kept the staple short enough to meet the demands of the broadcloth manufacturers of that day, and two inches, unstretched, would have been regarded as a long staple then, and is so still. All old Merino breeders concur in the statement that the Spanish wool has increased in length in this country, yet it may be doubted whether a thorough bred sheep of this variety can be found in the United States, the wool of which, at one year's growth, averages three inches over the carcass. I never yet saw or heard of one.

The fleece of the Spanish Merino was exceedingly dense, level on the surface, uniform as between animals of the same family, and even in quality in the individual. The sheep of the Escurial cabana were destitute of external "gum," (indurated yolk,) and therefore quite light colored. Most of the celebrated flocks, however, had more of it, and were more or less dark—some as dark as the *unhoused* Merinos of the present day. The wool was free from indurated yolk within, and it opened with a fine lustre and the other general characteristics which still distinguish the breed.

Gilbert, a French writer of great reputation, stated in a report to the National Institute of France, in 1796, that "all the wool of Spain he had examined, not excepting the prime Leonese, the most esteemed of any, appeared to contain much more jar than that of Rambouillet." This would imply that the best wools of

* And it appears to me that the same fact is deducible from Petri's table. With the length, and belly circumference which he gives to them, they would far exceed the weights he gives, if they were as broad chested as their descendants.

† The Merino would travel almost twice as fast and more than four times as long as a mutton sheep, particularly in hot weather. Think of a great drove of ewes and lambs of *any* of the mutton varieties sweeping along eight or ten miles a day, for 400 miles twice each year, and kept on the most meagre pasturage during every trip! The Spanish ram would readily vanquish in battle, an English ram of twice his size. In "bottom," "pluck" and hardiness there is no comparison between the breeds.

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Spain exhibited this defect,* but Gilbert says "they pretend the best of the Spanish wool is not imported into France."

The weight of the Spanish fleeces was placed by Livingston at 8½ lbs. in the ram, and five lbs. in the ewe, which he stated lost half in washing. Youatt gives the average weight of the ram's fleece at half a pound less, but of the ewe's the same. The Spanish system of washing alluded to, was much more perfect than our own. Brook-washed, on the back, in the American way, the shrinkage would not have exceeded one-third.†

These are but general averages, and do not indicate the weight of fleeces of prime animals. The King of England's flock of Negretti's, about one hundred in number, yielded during five years (1798–1802) an annual average of $3\frac{153}{247}$ pounds of brook-washed wool, and $2\frac{152}{247}$ pounds of wool scoured for manufacturing.‡

Some of the Spanish sheep first imported into the United States yielded still more wool, if well-preserved tradition can be credited; but I have not been able to find any precise records of weighing, except in relation to a dozen or two of them. Our early writers on such topics appear to have eschewed nothing so much as exact and definite facts.

Youatt ascertained, by actual admeasurement, that the fibres

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* There has been some confusion as to the use of the term "jar" in our country. I think the foreign writers do not mean by it that firmly rooted hair which projects from the wool on the thighs, necks, &c. of some sheep, but that sharp-pointed, shining hair which is found *detached from the skin* within the fleece, and usually much shorter than the wool. It becomes detached when the wool has partly grown.

† If I have not made this distinction, in previously published papers on this subject, it was because I entirely overlooked the fact. The Spanish wools, after being shorn, are beaten on hurdles to remove loose dirt, then placed in a vat of hot water and stirred about five or six minutes, then put into the head of a trough or aqueduct of cold running water, and trampled on and rubbed by men's feet as they pass slowly through. They are next drained on an inclined plane and spread on the grass to dry. But four to seven per cent. of yolk is left in them. One-third of gross weight is the usual amount of deduction on our American unwashed wools, to put them on a par with our brook-washed wools.

‡ The flock included a very small number of wethers (the number is not given) and no rams. To exhibit the sorting of the Spanish wools of that day, by the English mode, I subjoin the following table:

	No. of sheep.	Lbs. of wool washed on sheep's back	Lbs. of scoured wool.	Lbs. of "prime" wool.	Lbs. of "choice" wool.	Lbs. of "fribbs."
1798.....	89	295	203	167	23	13
1799.....	101	346	254	207	28	19
1800.....,	100	398	294	234	34	26
1801.....	108	397	285	237	31	17
1802.....	96	352	256	221	32	3

I have drawn these facts from Sir Joseph Banks' five annual reports in relation to His Majesty's flock.

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of a specimen of picklock (the best) wool from a Negretti fleece, had the diameter of $\frac{1}{750}$ part of an inch. Another "fair sample" which he thought was probably *fina*, or No. 2, and a third one taken from Lord Western's Merinos, in England, gave the same admeasurement. This may probably be assumed as the average fineness of the good Merino wool of that day.

Having attempted to show the principal characteristics of this celebrated breed of sheep at the period of its highest development in its native country, comments and comparisons will be reserved until its French and German offshoots—also introduced into the United States—are first examined.

The French Merino.

Colbert, the eminent French statesman, was the first, so far as I have ascertained, who attempted the transplantation of the Spanish Merino into other lands. Nor have I learned the date of that attempt. Colbert was born in 1619, and died in 1683. Occupied in incessant and harassing cares, he could give no personal attention to his experiment, and it is to be presumed the sheep encountered among his dependents that obstinate antipathy which subsequently met them, among the ignorant, in every other country outside of Spain. As would be expected under such circumstances, they attracted no notice, and soon disappeared. A subsequent importation of Merinos by M. de Perce, resulted so favorably as to attract the notice of the government, which instituted a series of experiments on the subject, under the direction of the celebrated Daubenton. These proved satisfactory, and Louis XVIII of France applied to the King of Spain for permission to export a flock. The latter not only granted the request, but ordered "that they should be selected from the finest flocks of Spain."* A little over three hundred of them arrived safely in France in 1786, and were placed in an agricultural establishment devoted to the improvement of domestic animals, at Rambouillet, about forty miles from Paris.

Gilbert, in his already cited report to the National Institute of France, in 1796, thus describes them and the course of breeding to which they were subjected:

"The stock from which the flock of Rambouillet was derived, was composed of individuals beautiful beyond any that had ever before been

* Livingston's Essay, p. 47.

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brought from Spain; but having been chosen from a great number of flocks, in different parts of the kingdom, they were distinguished by very striking local differences, which formed a medley disagreeable to the eye, but immaterial as it affected their quality. These characteristic differences have melted into each other, by their successive alliances, and from thence has resulted a race which perhaps resembles none of those which composed the primitive stock, but which certainly does not yield in any circumstance to the most beautiful in point of size, form and strength, or in the fineness, length, softness, strength and abundance of fleece. * * * The comparison I have made with the most scrupulous attention, between this wool and the highest priced of that drawn from Spain, authorizes me to declare that of Rambouillet superior."

Judging by the taste uniformly displayed by the French in that particular, there is little doubt that "abundance of fleece" was the first rather than the last consideration—as it here happens to be named—which guided the original selection. And the far more liberal feed which the sheep received in France—their exemption from the exhausting annual migrations of Spain, and a course of breeding specially designed to produce that result, rapidly carried the weight of their fleeces beyond any point ever known in their native country.

Ten years after their introduction into France, Lasteyrie gives their average weight of fleeces, unwashed, and thus continues it through a series of years: in 1796, 6 lbs. 9 oz.; 1797, 8 lbs.; 1798, 7 lbs.; 1799, 8 lbs.; 1800, 8 lbs.: 1801, 9 lbs. 1 oz.

While all practical wool growers know that some seasons produce lighter fleeces than others—without reference to the apparent condition of the sheep, or to the weather, or any other circumstance known to influence the growth of wool, the disparity here exhibited between 1796, and the succeeding years, cannot be thus explained, and it would be preposterous to imagine that the course of improvement had advanced thus abruptly within so limited a period.

Gilbert, writing under government patronage, said, in 1796:

"Almost all the fleeces of the rams of two years old, and upwards, weigh from twelve to thirteen pounds, but the mean weight, taking rams and ewes together, has not quite attained to eight pounds, after deducting the tags and the wool from the belly, which are sold separately." This is, probably, the correct statement,* for Livingston, so familiar with the Rambouillet flock,

* The supposed statement of Lasteyrie, under examination, may be a misprint. Having suffered my wool library to become scattered, I cannot verify the accuracy of the quotation

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accepts it as such, and subjoins the following remarks: "It is proper to observe that the French pound is almost one-twelfth heavier than the English; but, at the same time, to note that from the general custom of folding the sheep in France, of feeding them in fallows, and wintering them in houses, they are very dirty,* and their fleeces, of course, proportionably heavier; the loss in washing is about sixty per cent, so that the average weight of the ram's fleece would be, when washed and *scoured*, about six American pounds, exclusive of tags and belly wool."

"Scouring," even as Mr. Livingston uses the word†, is a very different process from brook-washing; and the belly wool, and clean tags, which are done up with the fleece in this country, would, I think, equal the weight acquired from additional yolkiness and dirtiness; so I infer that to place these unwashed French fleeces on an equality, in respect to cleanliness, with American brook-washed Merino fleeces, we should not deduct more than one-third of the given gross weight. There is something exceedingly unsatisfactory in statistics which are so vague as not to mention the respective number of rams and ewes, the fleeces of which go to make up a mean weight—when all know the produce of the former is nearly double that of the latter.‡ But here we have something more definite, and it shows another decided stride upward in the Rambouillet sheep. Lasteyrie, in his report to the National Institute in 1802, states "that the medium weight of fleece of full grown nursing ewes was 8 lbs. 7 oz.; of the ewes of three years old, which had no lambs, 9 lbs. 13 oz.; and two-tenths [grade] ewes 10 lbs. 8 oz."§ By the rule

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from the original. I copy it from my "Sheep Husbandry in the South," and on turning to Youatt I find he gives the same figures.

I will, in this connection, add that, for the reason already given, I shall generally, in this paper, be under the necessity of re-quoting foreign authors from the work of mine alluded to. It is possible that occasional misprints have crept into succeeding editions of that work.

* A sheep, housed nights, and from storms, retains an additional amount of the soluble yolk in its fleece, which would far outweigh the mere "dirt" which adheres to the fleece.

† I do not apprehend that Mr. Livingston here refers to a process as thorough as that now employed by manufacturers in cleansing wool; but, judging from his remarks on other occasions, I infer that he meant something about equivalent to the Spanish mode of washing, described in a previous note.

‡ As already said, not having Lasteyrie's works to refer to, I am not certain that he does not supply this omission; but I think not, or I should have quoted his statements on former occasions.

§ Quoted by Livingston, Essay, p. 142.

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of estimating above adopted, the Rambouillet grown ewes, sixteen years after the foundation of the flock, produced, on an average, not far from six pounds of wool, washed in the American way.

It is true that Mr. Livingston's own sheep, imported from France in 1802, bore less wool,* but it is evident that he made fineness, instead of quantity of wool, the leading consideration in their selection.

There is nothing incredible in these stated results of this most successful French experiment. The gain in wool is no greater, in proportion, than we witnessed in the American Merino in the sixteen years which succeeded 1840.

Leaping over a chasm of twenty-five years, let us again examine the Rambouillet sheep, and ascertain the progress of this most interesting experiment through the eyes of an English breeder of Merinos. Mr. Trimmer, the author of the "Practical Observations," visited this flock in 1827, and the following is his often quoted description of it:

"The sheep, in size, are certainly the largest pure Merinos I have ever seen. The wool is of various qualities, many sheep carrying very fine fleeces, others middling, and some rather indifferent; but the whole is much improved from the quality of the original Spanish Merinos. In carcass and appearance I hesitate not to say they are the most unsightly flock of the kind I ever met with. The Spaniards entertained an opinion that a looseness of skin under the throat, and other parts, contributed to the increase of fleece. This system the French have so much enlarged on that they have produced, in this flock, individuals with dewlaps almost down to the knees, and folds of skin on the neck, like frills, covering nearly the head. Several of these animals seem to possess pelts of such looseness of size that one skin would nearly hold the carcasses of two such sheep. The pelts are particularly thick, which is unusual in the Merino sheep. The rams' fleeces were stated at 14 lbs., and the ewes' 10 lbs., in the grease. By washing they would be reduced half, thus giving 7 and 5 lbs. each."

Washed, in the American way, these rams' fleeces would have yielded an average of about $9\frac{1}{3}$ lbs., and the ewes' fleeces about $6\frac{2}{3}$ lbs.

Trimmer described only the Royal flock. It appears that it was already beginning to be outstripped, in weight of fleece and

* Viz, in 1807, three ewes, having lambs, bore 11 lbs. 12 oz., or nearly 4 lbs. each, of unwashed wool. In 1808 "he did not keep a separate account, but as they were in better order he thought the average was near 5 lbs." In 1809 seven ewes bore 36 lbs., or 5 lbs. 2 oz. per head. The same year his three rams bore, respectively, 12 lbs. 14 oz., 9 lbs., and a ram, fourteen months old, of "uncommon size," (imported from France in 1808,) bore 9 lbs. 6 oz., all unwashed.

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size of carcass, by private ones. On this subject I prefer to quote the language of John A. Taintor, Esq., of Hartford, Connecticut, by far the most extensive importer of French sheep into the United States; and a gentleman long familiar with all the National varieties of the Merino. It will add to the interest of his remarks on this subject to give his reasons for preferring the French, and his criticisms on other varieties. I should say, in justice to Mr. Taintor, that his letter to me, from which I quote, was written in haste, on the eve of a journey, and with no expectation that I would adopt its phraseology in making use of its facts. But its terse and careless off-handedness does not detract from its value.* He writes:

"In 1828 I imported a lot of Saxony sheep, and, at various times, have selected, in France, nearly one thousand of their best Merinos. In 1842 my friend, D. C. Collins, of this city (Hartford), bought, by my advice, fourteen ewes and two rams of the Royal flock at Rambouillet. About half of them were good sheep, but for want of care and attention the importation was of but little value to the owner or the country.

* * "I cannot afford to keep any other sheep (for wool) but French Merinos. I call them *best* because they pay best, and that is the true test. Not the sheep that can crawl through the year with the least possible care and feed, but one generously fed and cared for, and bred with close attention and judgment, with always an eye for the most valuable fleece for the manufacturer, and the most valuable carcass for the butcher.

"Since 1828 I have been seven times across the water, and at one time took a year and a half to visit every part of Europe, and examine the flocks and see the owners, hear all they had to say, and then use my own judgment. You are aware that the Spanish Merinos have become almost lost. They are so small, neglected, and miserable that I would not take one of them even as a present.

"Improved machinery, too, has had a ruinous effect on the Saxony flocks, as they have learned the art of using medium wool in the place of very fine. The sheep of Saxony, proper, are more than half a million less in number than ten years ago.

"In France, the Royal flock (now the private property of the Emperor,) at Rambouillet, which, for years, attracted all the sheep masters of Europe to its annual auction sale, bred the fleece so fine, and the animals so delicate, that they could no longer attract attention; and, four years ago, they changed the plan, and now sell (when they can) at private sale. The sheep have no wool on the head or legs, and but little on the belly They are ruined by high breeding. The wool is short and fine.

"In France forage is more than double the price that it is in this country. The price of mutton is also about double, and the price of wool, on the average of the last fifteen years, about 24 to 26 cents per pound, always in the grease. Ewes' fleeces average 14 lbs. (in flocks of 500), and rams 20 lbs. to 24 lbs. Say average weight for ewes (all

* It is dated January 2, 1862.

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ages) 100 lbs., and rams 200 lbs. One ram I bought (for 3000 francs or $600) weighed 309 lbs., carrying a fleece, unwashed, of 32 lbs. Fair estimate of loss, in cleansing, 60 per cent.

"It is from this class of flocks I have selected my Merinos. It is from wool of this class that the fine French muslin de laines are made, as it has length of staple and fineness, with requisite strength, which is all important.

"Three years ago a gentleman sent me, from Estremadura, a number of Spanish Merino fleeces as a sample (as circumstances did not allow me to see his flock when in Spain.) They were little wads of fleeces. I can send you one if you have any curiosity to see it."*

The remarkable fact is made to appear, from these statements of Mr. Taintor, that, at the period of his importations, there were flocks of 500 in France which produced 14 lbs. of wool to the ewe, and from 20 to 24 lbs. to the rams. If we are to suppose the belly and tag wool excluded from these also, then the ewes produce nearly 9 lbs. 6 oz., and the rams about 14 lbs. 11 oz. of brook-washed wool. If, as I conjecture, grown sheep are only referred to here, the weight of the ewes probably averaged not far from 150 lbs., and the rams at least 200 lbs.†

I have traced down the history of these sheep to the period of their comparatively recent emigration to the United States, although two or three importations of them, hereafter to be mentioned, were made about the beginning of the present century. But I cannot learn that all of the latter included more than a dozen living sheep on their arrival in this country. And it is probable either that these were soon mixed with the Spanish Merinos of the country, or else that they had not yet obtained established characteristics differing sufficiently from those of the latter to found a separate family. At least no family, bearing any resemblance to the present French sheep, sprung from them.

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* One of these fleeces has been forwarded to me. It is in the dirt, and weighs 5 lbs. 11 oz. It is difficult to judge its exact quality, as exposure to the air has converted much of it to the color of a sponge, and altered its appearance in other particulars. It is about as long as American Merino wool—is not very even in quality, and I think I am not mistaken in saying that in fineness it would be below mediocrity in any prime full blood American flock. Having been sent among *specimens* from Spain it ought to be up, at least, to the average quality and quantity of fleeces in that country.

† I have seen flocks of Mr. Taintor's imported sheep, and their immediate descendants, numbering thirty or forty each, and I judge this about the average weight of the full grown ewes when in good condition. They varied from 125 to 180 lbs.—an occasional one reaching 200 lbs.

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The Saxon Merino.

Though France took priority in the introduction of the emigrant Merinos, Saxony effected an earlier successful colonization of them. In 1765 Prince Xavier, administrator of the Electorate during the minority of the Elector, Frederick Christian, obtained the permission of his brother-in-law, the King of Spain, to introduce three hundred Merinos into Saxony, and other flocks on subsequent occasions. It is understood that the sheep were principally drawn from the Escurial cabana.

The course of breeding adopted in the Electoral and private establishments tended to develope an extreme fineness of wool at a material sacrifice of other properties. Size of carcass, weight of fleece, and constitutional vigor, were rapidly diminished. The loss of hardiness was met by an extreme care of the animal, extending to those minute and methodical arrangements which are so congenial to the spirit of German agriculture, and which were rendered economically practicable by the cheapness of labor.

The sheep were housed during the winter (usually in spacious and well arranged structures of brick or stone). They were housed at night, and generally brought in for a time at noon, in the warm weather; their carefully selected and constantly varying food was portioned out to them with the strictest nicety; they had a daily routine, and a monthly routine of nutriment; they were never allowed to go out when dew was on the grass; they were most carefully protected from rain, and fed in stables during its continuance; they were not allowed to run on particular kinds of ground in damp weather, etc., etc. And, during the yeaning season, the regularity and care of the attendance they received did not fall far short of those of a human lying-in hospital.

These sheep, when introduced into the United States, lacked at least one-fifth, and often more, of the weight of the parent Spanish Merino, as it then was; they were longer legged in proportion to size, slimmer, finer boned, and thinner in the neck and head. At every point they gave indications of a more delicate organization. Their fleeces averaged from one and a half to two pounds of washed wool in ewes, and from two to three pounds in rams. There was sufficient yolk in the fleece to give it pliancy and brilliancy, but the yolk was colorless, limpid, and easily

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liberated in washing. It never assumed a viscid, waxy consistency, or became indurated into "gum" either within or on the outer extremity of the wool, and consequently having nothing on the surface to catch and retain dirt, the fleece remained almost white externally.

The staple, unstretched, was usually from an inch to an inch and a half in length on the back and sides, shorter on the belly, and formed a considerably less compact mass than that of the Spanish Merino. In the best sheep, the surface of the fleece was smooth and even, (as if it had been cut off at a uniform length,) and it broke into masses of some size; but in inferior animals the wool grew in small disconnected tufts, which ended in *points* externally; these fell apart on the shoulder and along the back, and in some instances partly hung down like hair or Leicester wool, instead of standing at right angles to the surface. The last indicated extreme thinness of fleece. When to this was added a gauzy, half-peeled nose and ear—an ear as thin and almost as transparent as parchment—a pale skin, a carcass without depth and about six inches thick, a camel-shaped neck, and long spider legs, the "lower deep" of debility and degeneracy was reached.

But there was an atoning beauty about the wool of the Saxon which it was hard to resist. It flashed with such a gem-like lustre; it was so beautifully fine and even; it had such an exquisite downiness of touch, that all other wool seemed base by the side of it. I have seen it so pliant, that a lock of it held upright by the outer end, between a thumb and finger, and gently played up and down, would bend and dance like a plume.

According to Youatt's measurements, the fibre was about $\frac{1}{840}$ of an inch in diameter; but he did not obtain fine specimens of the wool.

This variety had "touched bottom" in physical degeneracy at the period of its importation to the United States, and a reaction was commencing in breeding. As there have been recent American importations of them, I will present a brief view of the present prime sheep of Germany.

That the former inferiority both in weight of fleece and carcass continues to exist in the flocks of Saxony, Silesia, and all parts of Germany where these sheep have become established, is certain. But such breeders as Baron Von Sternburg in Saxony,

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Prince Lichnowsky and Mr. Fischer in Silesia, and various large proprietors in Hungary, have bred on the principle that good size and compactness of form and fleece are essential to profit. Von Sternburg (Alexander Speck Von Sternburg, generally called Baron Speck by Americans) is now better known in this country than any other German breeder. I think most if not all of our late Saxon importations have been made from his admirable flock. In a letter to Mr. Wright, the American Minister to Berlin, written in 1859,* the Baron gave the following as the average weights of his sheep: full grown rams, 110 lbs.; ewes, 82 lbs.; wethers when fat for the butcher, 110 lbs. to 115 lbs. The average weight of the washed fleeces of his ewes was 2 lbs. 7 oz.; of his wethers, 2 lbs. 8 oz.; of his yearlings, 2 lbs. 5 oz.; of his rams, 4 lbs. to 6 lbs. 14 oz. The flock numbers 1200. His best ewes undoubtedly produce as much as 3 lbs. a head, and kept in smaller flocks and pampered, would produce nearly or quite 3 lbs. 4 oz.

Mr. Charles L. Fleichmann, formerly draughtsman of the United States Patent Office, attended the great meeting of German agriculturists at Breslau, in 1845, where particular attention was given to the subject of wool; and that gentleman communicated the result of his very minute observations in an instructive paper prepared at the request of the Commissioner of Patents.† In this paper, the sheep of the manor of Alcsuth, in Hungary, are mentioned as a flock of high reputation throughout Germany. I do not observe that their average weight of carcass is given, but Mr. Fleichmann speaks of their "surprising size" and says, "there are some rams that measure five feet from the muzzle to the root of the tail, and twenty-nine inches from the bottom to the chine.‡

The average weight of their fleeces was as follows: rams 3 lbs., wethers 3 lbs. 8 oz., ewes 2 lbs. 8 oz., lambs 14 oz. The wool was extremely well washed. The flock numbered ten thousand. A diminution of numbers, a selection of the heaviest fleeced, and pampering, would produce the same increase in the weight of

* For his sensible and practical letter containing much information in respect to German sheep husbandry, see Patent Office Report, 1859, p. 288.

† See Patent Office Report, 1847, p. 239, *et seq.*

‡ This is a considerably longer and taller sheep than the Spanish Merino, or than the American Merino of approved size and form. See Petri's table, already given, with subjoined American measurements, and remarks. I cannot think that such length and height would find any favor in Germany, in animals producing only *three pounds* of wool.

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wool that has been assumed the like circumstances would produce in the Baron Von Sternburg's flock.

The Baron sells his wool "from 2s 8d to 3s 2d per pound, (English currency, I take it.) The Alcsuth wool was sold in 1838 for 72½ cents a pound, in 1839 for 79 cents, and in 1840 and 1841, when prices were depressed, for 64 cents.

At Breslau is the most celebrated wool market of Germany, frequented by manufacturers and wool merchants from England, France, Belgium, Russia, and other nations. The following table of what is about the average annual prices of the seven qualities into which the German fine wools are sorted, will be found instructive for the purposes of comparison :*

Cwt.	Reichthalers.	Dolls.
3,000 are of the finest quality and average about	130 =	98 per cwt.
4,000	110 =	77 do
5,000	100 =	70 do
10,000	90 =	63 do
15,000	80 =	56 do
15,000	70 =	49 do
8,000	50a60 =	35a42 do

Baron Von Sternburg's sheep farm has some other stock. He realizes 5½ per cent. from the whole, and appears well satisfied with his profits. It is probably a high rate of profit for any of the great German or Hungarian sheep establishments.

The Silesian Merino.

There is not, perhaps, properly speaking, any distinct family of Merinos entitled exclusively to this appellation. There are in Prussian Silesia numerous flocks descended from the Saxon Merinos, and not a few descended from Merinos brought direct from Spain. In the only important importation made from Silesia to the United States, of which I have information, the sheep belong to the latter class, and so far as this country is concerned *they* have received the distinctive name of Silesian Merinos.

I will reserve a description of this flock, until the subject of importations of Merinos into the United States is specially considered.

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* See Fleichmann's paper, Patent Office Report, 1847, p. 293.

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Introduction of Merinos into the United States.

In 1793, William Foster, of Boston, Mass., being on his return from a residence at Cadiz, in Spain, "with much difficulty and risk" got out of that kingdom, and brought home with him three Merino sheep—two ewes and one ram. Their fate was somewhat characteristic of American knowledge of sheep at that time. Mr. Foster writes: "Being about to leave this country for France, soon after my arrival in Boston, I presented these sheep to Mr. Andrew Craigie, of Cambridge, who, not knowing their value at that time, 'simply ate them,' as he told me years after when I met him at an auction buying a Merino ram for $1000."*

In 1801 Dupont de Nemours, the head of the commission appointed by the French government to select, in Spain, the large flock of Merinos given up by the latter by the treaty of Basle, together with a Mr. Delessert, a Parisian banker, shipped four ram lambs to America, three of them intended for farms owned by those gentlemen in the United States, and the fourth for President Jefferson. Three perished on the passage, but the other arrived safely, and lived to effect a vast deal of good.†

Later, the same year, Mr. Seth Adams, of Zanesville, Ohio, imported a pair of Spanish sheep which had been carried into France. They arrived in Boston in October, and received the premium of the Massachusetts Society for promoting Agriculture, the following year.‡

In 1802, Mr. Livingston, the American Minister in France, sent home two pairs of Merinos to his estate on the Hudson. They

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* George Livermore, Esq., of Boston, writes me: "Mr. Foster is still living at the advanced age of nearly ninety years, and I have this day called on him, and heard from his own lips an account of his importation of Merino sheep substantially the same as that given above (January 20, 1862)."

† "Don Pedro" was taken to Dupont's place, near New York. In 1802 he was placed on Delessert's farm, called Rosendale, near Kingston, N. Y., and was used there for four years. In 1805 Delessert rented his farm, and sold his sheep at auction. The ram was bought by Dupont's agent for $60. The half and three-quarter blood ewes were sold to the surrounding farmers "at a price inferior to that of common sheep," and above half of them "perished of neglect the following winter." (Preface to Livingston's Essay, p. 8.) Chancellor Livingston found 24 of them and bought them after the introduction of his Merinos. "Don Pedro" was removed, in 1808, to E. I. Dupont's farm, near Wilmington, Delaware. That spirited gentleman offered the ram's services gratuitously to his neighbors, but scarcely any of them availed themselves of the offer! He, however, founded a valuable flock for his owner. This superb animal, for that day, weighed 138 lbs., and his fleece, well washed in cold water, 8 lbs. 8 oz. His wool was fine and even, and he was a model of form.

‡ Mr. Adams published this statement in the Albany Cultivator many years ago, and its authenticity has never been disputed.

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were purchased from the French National flock, at the Veterinary school, at Chalons. They cost him, delivered at Paris, five miles distant, 1200 franks, and about twice that sum delivered at his farm, though the patriotic captain of the vessel refused to take any freight.* One of his rams is figured from a drawing furnished by himself, in Vol. 1, of the "Transactions of the (N. Y.) Society for the Promotion of Agriculture, Arts and Manufactures." It represents a low, compact animal, with a smooth, long face, a skin free from folds on any part, and legs without wool below the knees. Though somewhat out of drawing, it is, obviously, the figure of a class of Merinos very common twenty years ago, and yet to be found in ordinary unimproved flocks. The type is essentially Spanish, there not being the most remote resemblance to the French sheep of the present day.

Mr. Livingston made another importation of a single French ram in 1807, and he speaks of having purchased some choice ewes brought to France from Spain. But I do not learn that the latter ever arrived in this country. His sheep attracted no special notice until 1807 or 1808, when he began to sell his rams for $150 a piece.† Half-blood rams and ewes, bred from his rams on common sheep, sold for $12 a piece.

This eminent public benefactor had too many pursuits to be able to give much of his personal attention to breeding. His sheep improved, and were of good quality, but he established no distinct family, of special value, which has survived until the present time.

In the same year with Mr. Livingston's first importation (1802), Col. Humphreys,‡ the American Minister in Spain, being about to return from that country, after an official residence in it of seven years, brought home with him a flock of Merinos. I quote the

* They were treated, on their arrival, exactly like his other sheep—fed on hay, and had no shelter. They brought two lambs the first year, and three of them (he had let his brother have one of the rams) sheared 11 lbs. of washed wool—nearly 3 lbs. 12 oz. each. The next year the lambs came in January, "were neglected, and died!" In 1805 "one of the ewes was sick and brought no lamb; the other dropped a ewe lamb; and the five fleeces (from the three old sheep and two shearlings), when washed, weighed 18 lbs., besides the tags and waste wool," upwards of 3 lbs. 8 oz. each. The Chancellor "thought this a considerable yield from small sheep, kept upon hay, in a flock with twenty other sheep!" See Livingston's Essay, &c., in 1806, subsequently expanded into his more elaborate Essay of 1809.

† For a choice one raised by himself, ten months old, he refused $1000.

‡ He was an aid-de-camp of Washington in the Revolution, and an inmate of his family at Mount Vernon from 1788 to 1790. He was an elegant, learned, and public-spirited gentleman.

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following statements from his "Dissertation," &c., addressed to the Massachusetts "Society for Promoting Agriculture" (August 25, 1802):

"Convinced that this race of sheep, of which, I believe, not one had been brought to the United States until the importation by myself,* might be introduced with great benefit to our country, I contracted with a person, of the most respectable character, to deliver to me, at Lisbon, one hundred, composed of twenty-five rams and seventy-five ewes, from one to two years old. They were conducted, with proper passports, across the country of Portugal, by three Spanish shepherds, and escorted by a small guard of Portuguese soldiers. On the tenth of April last they were embarked in the Tagus, on board the ship Perseverance, of 250 tons, Caleb Coggeshall master. In about 50 days, 21 rams and 70 ewes were landed at Derby, Connecticut, they having been shifted, at New York, on board of a sloop destined to that river. The nine which died were principally killed in consequence of bruises received by the violent rolling of the vessel on the banks of Newfoundland."†

It does not appear, from his writings, that Col. Humphreys paid any attention to the difference in the cabanas in Spain.‡

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* Livingston said his own "arrived safely in the *spring* of 1802, and were, he believed, the first *couples* ever imported into the United States." (Pref. to Essay, p. 7.) It is probable, therefore, Livingston's arrived a little the earliest. The point is of no consequence, but I am told it created some feeling in its day.

† See Col. Humphreys' Works, p. 349. In this gentleman's poem "On the Industry of the United States of America," after a glowing description of the times:

"*When* true utility, with taste allied,
Shall make our homespun garbs our Nation's pride,"

he proceeds to say—

"Not guarded Colchis gave admiring Greece
So rich a treasure in its golden fleece.

Oh, might my guidance from the downs of Spain,
Lead a white flock across the western main;
Fam'd, like the bark that bore the Argonaut,
Should be the vessel with the burden fraught!
Clad in the raiment my Merinos yield,
Like Cincinnatus, fed from my own field,
Far from ambition, grandeur, care and strife,
In sweet fruition of domestic life;
There would I pass, with friends beneath my trees,
What rests from public life in lettered ease."

‡ I am indebted to George Livermore, Esq., of Boston, for several MSS. letters of Colonel Humphreys, specially on the subject of his sheep, addressed to different correspondents, and not one of them mentions or alludes to this subject. If I recollect aright the name of any separate cabana does not occur in his published papers. He was the son of a clergyman, and, not long after leaving college, entered the army. During his two years' residence at Mount Vernon he doubtless acquired many agricultural tastes, but he could have known little or nothing of it practically until his return from Spain. Prior to that period his leisure hours appear to have been devoted to polite literature. He does not mention ever even seeing any of the great Spanish flocks; and alone mentions, as the sources of the information given by him in his Dissertation, "the facts stated, in some instances, by respectable individuals, and, in others, by official reports."

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It has been suggested to me, by a most intelligent correspondent, that, being an Ambassador, he was, probably, allowed to draw his sheep from the Escurial flock, and I find that this impression is somewhat prevalent. Those who have read his writings, and observed the old-school ceremonious courtesy, as well as the other tastes developed in them, will have no difficulty in arriving at a very positive conclusion that, had Colonel Humphreys been indebted to any proprietor of a cabana for a selection from his flock, or for any other particular favor in the premises, the fact would have been carefully stated. It is to be presumed he made inquiries in the proper place, and was referred to a thoroughly capable, as well as "respectable" person, to make the purchases for him, and there is no doubt the commission was most intelligently and faithfully executed. No flock enjoyed a better early reputation in our country, and none enjoys a better traditional reputation now. With the Spanish ideas in respect to mixing cabanas, such a Spanish agent as he employed would not have procured different varieties as the foundation of a flock. It is singular how few things, in relation to these sheep, can now be agreed on by different recollectors; and the contemporaneous descriptions are usually so vague and general that they will apply to one variety as well as another.

In a manuscript letter of Col. Humphreys, before me, he says, as if he thought it worthy of note, that a ram, raised on his farm, yielded 7 lbs. 5 oz. of washed wool. In an Essay, obviously written by a gentleman, and a man of the first intelligence and standing, but whose name is torn from the copy before me,* there is a more careful description than I have elsewhere seen of a full blood ram of this flock, owned by Mr. Bulkley, of Philadelphia, and lent by him to the writer in 1807. This ram was very small, very fine, and produced but 4 lbs. of washed wool. His "length of staple was somewhat less than that of Mr. Livingston's rams." "He was extremely gentle, and strongly marked with the carnation hue of skin; had spiral horns, and brownness of fleece surface, all of which qualities he faithfully transmitted to his progeny in their usual proportions." The "brownness penetrated to some depth from the surface." His lambs, when they came,

* This writer mentions that he wrote the article on wool in the ——— Cyclopedia; and he was the importer of the *black* Merinos next to be described. I have had considerable search made in Philadelphia to discover his name, but, as yet, without success.

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were "covered with coarse hairs," to the great suspicion of their paternity, until it was found this hair dropped off, and that his subsequent crops of lambs exhibited the same peculiarity. Here we have a distinct hint of Paular or Infantado characteristics. Yet Col. Humphreys' sheep could scarcely have been Paulars without some one alluding to their throatiness—a point which then attracted peculiar notice both because it was unusual, and regarded as unsightly. Besides, the sheep we now have among us, which can trace a clear descent from Col. Humphreys' flock, are not marked by this peculiarity unless it has been bred on them within the last fifteen or twenty years. It can hardly be presumed that the American Ambassador would have been placed by his Spanish acquaintances in the hands of an agent who would have purchased from an obscure flock, or one not among the first.* I do not build up a hypothesis on the single fact above given; it is only one among a number of scattering hints and circumstances which have led me to the opinion that the sheep were from the cabana of the Duke of Infantado.

One thing is certain. No such ram as Mr. Bulkley's could have been of Escurial blood. And the darkest and yolkiest sheep bred in the United States (Mr. Stephen Atwood's family), which trace directly to sheep bred by Col. Humphreys, cannot be descended from the whitest and dryest fleeced sheep of Spain.

Judging from the statements in Col. Humphreys' manuscript letters lying before me, he not only found great satisfaction but great success in breeding his sheep. The very ones he brought from Spain, he says, increased half a pound in their fleeces; and their descendants continued to improve in that and every other particular. He speaks glowingly of their hardiness and propensity to fatten; and in the highest terms of their mutton. This gentleman (to whom the farmers of New England should erect a statue) died in 1818, when causes, hereafter to be detailed, had sunk the Merinos into contempt and neglect. His invaluable sheep were then scattered, and, as a general thing, they appear to have fallen into the hands of those who attached no great value to their blood, for I can learn of but two or three instances where they were preserved distinct after 1826; and it is a lesson

* Col. Humphreys was a favorite at both the Courts of Portugal and Spain. He had been made highly wealthy by marriage. He had the means to pay for the best; and those who know anything of him know how absurd it would be to suppose he failed to instruct his agent to obtain the best.

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of some value to those who term themselves "breeders," to know that those who had the good sense or good luck thus to preserve them in their purity were farmers of little information, and wholly obscure until their connection with these sheep raised them to notoriety.

Mr. —— ———,* of Philadelphia, had, as early as 1796–7, sent an order to Spain for a Merino ram. The animal reached the Capes of Delaware safely, but was there washed overboard in a storm. He sent an order for a pair in 1801, instead of which two pairs of *black* ones reached him in 1803! This he supposed done to "increase the profit of the commission," for black Merinos "cost but little, being held in no estimation in Spain." This gentleman bred from these assiduously for a few years, but nobody would buy them, and they had to be abandoned.

Mr. Muller imported a pair of Merinos from the flock of the Prince of Hesse Cassel in 1807, and they, and their descendants, were kept about Philadelphia, and in New Jersey and Delaware. James Caldwell, Esq., of Philadelphia, interbred, with success, between these and sheep from Col. Humphreys' flock.

But by far the most extensive and important importations of Spanish Merinos into the United States were thus described in a letter to me, in 1841,† from Hon. William Jarvis, the principal person engaged in them:

"When the second irruption of the French armies into Spain, in the winter of 1809, drove the Spanish Junto from Madrid to Badajos, the Junto was without money and without resources, and they durst not levy any taxes on the Estremaduras lest they should disgust that province, and the people should declare in favor of the French. No alternative was, therefore, left them other than to sell the four flocks of Merinos which had been confiscated with the other property of four grandees who had joined France, with license to transport them out of Spain. Those flocks were the Paular, which had belonged to the celebrated Prince of Peace, the Negretti, which had belonged to the Conde Campo de Alange, the Aqueirres (the wool of which was known in England as the Muros, this flock having been the property of the Moors before their expulsion from Spain), which had belonged to the

* See second note back, and the text to which it is appended. I find this account of his importation of black sheep in the fragmentary Essay mentioned in such text. The Essay will be found in a volume of the State Agricultural library, made up of miscellaneous papers and extracts. It appears to have been published in 1808 or 1809. The author says the price of his sheep, in Spain, was $60, freight $20. The quantity of wool yielded by the two rams was 4¾ and 4½ lbs.; by the ewes, 3½ and 3¼ lbs. This was washed wool, I suppose.

† Published in the Transactions of the New York State Agricultural Society that year.

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Conde de Aqueirres, and the Montarco, which had belonged to the Conde of that name. Those flocks were then in the vicinity of Badajos, and, when confiscated, the two former numbered about five thousand each, and the two latter about twenty thousand each; but they had been reduced, by being unceremoniously slaughtered for the use of the armies, to about seven thousand five hundred Paulars, six thousand Negrettis, four thousand Montarcos, and three thousand Aqueirres. Four thousand of the Paular flock were sent to the King of England, in compliance with the application of his Minister, and General Downie and I purchased the remainder. Sir Charles Stewart, the British Minister, purchased the Negretti flock, of which I selected a small part, and the remainder he sent to England. I also purchased about one thousand three hundred Aqueirres, and selected about two hundred from the Montarcos. I likewise purchased, in Spain, two hundred of the Escurial flock from the mayoral, which were the only Escurials ever sent to this country. I shipped, in 1809 and 1810, about three thousand eight hundred and fifty to this country of the aforementioned flocks, being all which I purchased in Spain, and which were distributed as follows: about one thousand five hundred to New York; one thousand to Boston and Newburyport, including three hundred and fifty which I sent to be reserved for me; the remainder were sent to Philadelphia, Baltimore, Alexandria, Norfolk and Richmond, and a small number to Wiscasset, Portland and Portsmouth, as I was disposed to distribute these valuable animals to every State which would be likely to profit by the acquisition. Those I reserved for myself were composed of about half Paulars, a quarter Aqueirres, and the other fourth of Escurials, Negrettis and Montarcos, which I subsequently mixed together.

"There were sent, in the latter year, (1810) by others, about two thousand five hundred, composed of Paulars, had of General Downie, Montarcos, Aqueirres and Guadalupes. Part of those went to New York, part to Boston. All those sheep were Leonesa, transhumantes, and were of the prime flocks of Spain.

"I have been able to be thus minute in relation to the Merinos in 1809 and 1810, as I was then American Consul at Lisbon, which was the port from which they were all shipped, it being only about one hundred miles to Badajos, and the nearest seaport to that place."

It was thus our peculiar good fortune at the period of the final disruption, and dispersion to foreign lands of some of the most celebrated flocks of Spain, to have on the spot a public agent who had the sagacity and energy to avail himself of the opportunity to confer an inestimable benefit on his country.

Mr. Jarvis very unfortunately crossed a portion of his large flock of Spanish Merinos with the Saxons, when the latter were brought into the country; but he discovered his error in time to correct it,* and made those careful arrangements which effectu-

* Mr. Jarvis wrote to me in 1844, a letter from which the following and some other extracts were published in the same year in the Albany Cultivator and New York Agriculturist;

"In May, 1826, I purchased 52 or 53 at the sale in Brighton, Mass., of the large importation of Saxony sheep by Messrs. Searle of Boston; and the following autumn I selected and separated one hundred merino ewes from my flock, and the rest I crossed with Saxony bucks

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ally prevented any subsequent admixtures of blood. He bred his descendants of his Spanish importations pure to the period of his recent death.*

I have not thought it necessary to collect the statistics of all the different importations which followed those of Mr. Jarvis, and shall allude to but few, the facts concerning which appear to be well authenticated. In a letter to L. D. Gregory, Mr. Jarvis goes into some more particulars in regard to the later importations. He says there were about 300 Guadalupes and 200 or 300 Paulars sent to Boston; about 2,500 Montarcos to Boston, New York, Providence, Philadelphia, Baltimore and Savannah; that those shipped for Boston were for the account of Gorham Parsons, Gen. Sumner, D. Tichenor, and E. H. Derby; that they were all shipped in 1809, 1810, and the early part of 1811. Charles Henry Hall, of Pomfret, Connecticut, (afterwards so well known as a breeder of horses, cattle, &c. in New York,) who, I

Those hundred Merinos and their descendants I have always been careful to keep by themselves, both summer and winter, and have been very particular in the choice of pure blood Merino bucks to put to them for breeding. The pure blood Merinos I kept marked with my old Merino ear mark, a half penny (or notch) under each ear; the progeny of those crossed between Merino and Saxony, with two half pennies under the right ear; and the full blooded Saxony with two half pennies under each ear.

"In 1831 or 1832, finding that the Saxony crosses were reduced in weight of fleece from four pounds, which was about the average of my full blood Merino flock, to two pounds ten ounces, or two pounds twelve ounces per fleece, upon an average, I took out all the remaining old Merino ewes, and put them with the descendants of the one hundred formerly reserved pure bloods. I have since bred all the Merino ewes with Merino bucks; and the cross blood ewes with cross blood bucks, selecting those with the heaviest fleeces; and full blooded Saxony ewes with full blooded Saxony bucks. I have been very particular to keep the three kinds of ewes apart, winter and summer. This I have been easily able to do, as I have ten sheep yards, each connected with a shed, and well separated with a good fence, and water in each; and fifteen pastures, all well walled or fenced. I particularly employ one man about my sheep, and constantly give the necessary directions regarding them, which I, personally, see are faithfully executed. Usually in March or April, I myself select from the preceding spring lambs the buck lambs I intend for stock bucks. The flocks are separately washed and separately sheared; and during the shearing process the lambs are ear marked and tar marked; and the old sheep are also tar marked as fast as sheared. I have been thus minute, to satisfy you of the confidence and safety with which I can speak of the blood of my sheep.

"My flock consists of about a thousand sheep of all kinds, of which there are one hundred and sixty Merinos, the pure blooded descendants of those I purchased in Spain in 1809 and '10, and exported from Lisbon; about one hundred full blood Saxons; and the remainder are crossed between Saxony and Merino. The fleeces of the latter, from the attention I have paid to the selection of bucks, (as before mentioned,) are much heavier than in 1832. The average of the three kinds, taken together, is now 3 lbs. 2 oz. to 3 lbs. 4 oz. per head."

* Now that he has passed away, I may be allowed to say of him, that on the score of integrity no American breeder's reputation ever stood higher. He was emphatically a "*gentleman* of the old school," above trick, dissimulation, or that paltry *reticency* which has marked so many celebrated breeders in all countries of the world.

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think, was American consul at Cadiz, at the time, sent home about 50 Merinos to his father, Dr. Hall. "They were Paulars, and good ones, too," says a competent judge. Peck & Atwater, of New Haven, imported a cargo of Merinos into that city in 1810.* A cargo of Infantados went into New London in 1810 or 1811. Abraham Heaton, of New Haven, and an associate imported a cargo into that place. Mr. Heaton writes me, (Jan. 29, 1862:) "I have no invoice of the particular breed of the sheep at this time, but I think I gave the papers regarding the breed, &c. to Daniel Bacon, of Woodbury, of this state, since dead, he having been one of the principal purchasers. I well recollect that a part of the cargo was composed of what is called the Guadalupe breed." A cargo of fine Paulars went into New York in 1811.

Circumstances Affecting their Success.

The earlier importations of Merinos into the United States, as has been already remarked, attracted but little public notice. The woolen cloths then made in the country were mostly spun and woven in families. The fine Merino wool was as little adapted to the instruments employed, as was so valuable a material to the cheap, common fabrics worn by our people. Both Livingston and Humphreys, however, patriotically set the example of attempting fine-cloth manufactures, with the new wool; and the former, with his usual energy as a public improver, made and published the results of investigations and experiments on the subject, which were soon to prove of the highest value.

When the great warlike struggle then shaking Europe led, in 1807, to maritime regulations—the English Orders in Council and the French Milan decree—which converted American commerce into the mere prey of the belligerents, our government made an effort to save it by laying an embargo (Dec. 22d) which entirely

* Mr. Jacob N. Blakeslee, of Watertown, Conn., whose flock on the maternal side is descended from these sheep, writes me, Jan. 15, 1862: "I took them of Capt. Peck to keep one year for half the wool and half the increase; they were the same he selected in Spain; they had the Spanish brand on the nose of every sheep; he told me he selected them himself from the flock of the 'Don Delle Infandado,' which was the best flock in Spain."

Since the preceding was written, I have found a letter from Mr. Blakeslee, in Appendix to Mr. Morrell's "American Shepherd," in which he says: "I began a flock of sheep, in 1815, that were imported by Peck & Atwater, of New Haven. A part of them were the Negretti and a part Montarco. I let them run together till 1823." There are other conflicts in the statements of the two letters. I mention it as a lesson to a large class of sheep breeders, of the impropriety of relying solely on their *memory* in regard to ancient pedigrees.

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shut our shipping off from the ocean. This was succeeded by the non-intercourse law, which prevented trade with England and France. France repealed her obnoxious decrees, and trade was restored with her, but the continued attitude of England rendered commerce with her neighbor precarious. A British outrage on an American national vessel (the Chesapeake) early in 1811, forced our country to begin preparations for war. This was declared in 1812, and continued until 1815.

Thus for a period of about eight years, our commerce was virtually suspended with those nations which had previously supplied us with our woolen goods, and was so interrupted and precarious with all others, that the establishment of home manufactories and of the means of supplying them with raw material, became an object of prime necessity. Most fortunately, the embargo was raised at just the right moment to allow the sheep, which the situation of Spanish affairs threw in the way of Mr. Jarvis and others, to be purchased and sent home.

At such a juncture, it would be expected that the arrival of the Merino on our shores would be hailed with enthusiasm—particularly when it was learned that we had obtained the very best sheep of Spain. And, as a matter of course, the spirit of speculation lent energy to the movement. From $1,000 to $1,500 a head were in many instances paid for the imported rams, and $1,000 a head for the ewes. Flocks of full blood or grade sheep were eagerly commenced in all parts of the country. Fine wool commanded such an exorbitant price that it required the utmost bad management, added to the most extravagant orignal disbursement, to render the venture unprofitable. As early as 1807 wool rose to a dollar a pound. In 1809, Mr. Livingston sold his full blood Merino wool, *unwashed*, for two dollars a pound! During the war with England it rose to $2.50.

State Encouragement.

The Legislature of this state passed laws to encourage the manufacture of woolen cloth. By the act of April 8, 1808, premiums of $150, $75 and $50 were respectively offered for "the best specimens of woolen cloth, of uniform texture and quality," "of a breadth of not less than three-quarters of a yard," manufactured within the state; a premium of $80 to the best specimen manufactured in a family in each county of the state; and premiums

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of $150, $75 and $50, in plate, to the three best of the last named county domestic specimens in the whole state.*

The act of April 5, 1810, after declaring that "important advantages, materially connected with the prosperity of the state, have resulted" from the preceding law, proceeds to amend it in some particulars which do not require mention. It was again amended in 1812,† and the preamble of the act declared that "the rapid increase in the manufacture of woolen cloth within the state of New York, and the great improvements in that branch of national industry, fully and satisfactorily evince that the bounties granted for that object have been highly useful, and that their continuance will be eminently beneficial." By this law the two principal state premiums were paid only for broadcloths.

It appears by a report of the State Comptroller,‡ that the sums paid out in premiums under these laws were as follows:

In 1809.....	$2,770	In 1813,.....	$2,790
1810.....	3,490	1814,.....	3,350
1811.....	4,095	1815,.....	3,970

The law of 1812 expired by its own limitation at the end of 1815, and was not renewed.§ The Council of the Society for the Promotion of Useful Arts reported through their chairman, in 1815, that the liberal bounties granted by the state, "in combination with other circumstances," had "contributed to raise in many respects, the fine cloths of America to a degree of perfection equal to those manufactured in Europe."‖

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* To obtain the first premium of $150, open to the competition of manufactories, the specimen of cloth was required to equal 200 yards, the second 150 yards, and the third 100 yards. The county specimens were required to equal 30 yards. The three first premiums, and the plate for the county specimens, were adjudged by the Society for the Promotion of Useful Arts—the county specimens by "a majority of the judges of the court of common pleas."

† Perhaps technically they were new acts.

‡ Made March 5, 1816.

§ I think the state defrayed no more money in premiums until the establishment of the Board of Agriculture in 1819, and then it divided $10,000 among the counties, to be paid out in various kinds of agricultural, &c., premiums.

‖ The chairman of the council was E. C. Genet, the famous minister of republican France, who produced such a commotion during Gen. Washington's administration. He had settled down near Albany, in this state, married a daughter of Gov. George Clinton, and was an opulent and public spirited citizen. The report has one or two characteristic touches. It is not complimentary to the commercial restrictions of the two last administrations, and has a sly stroke at the "Philosophers"! It is decidedly severe on duties intended "to check the importation of foreign manufactures" and "other disguised attempts at monopoly"!

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State Manufactures.

As a specimen of the manufacturing industry of those days, I will present the following statistics, compiled from the census of 1810. In that year the following fabrics were manufactured in New York:

	Yards.	Value.
Woolen goods made in families,	3,257,812	$2,850,585
Cotton do do	216,013	69,124
Flaxen do do	5,372,645	2,014,741
Blended and unnamed cloths and stuffs made in families,	180,659	63,230
Tow cloth do do	21,721	6,516

There were 33,068 looms, 413 carding machines, 427 fulling mills, and 26 cotton manufacturing establishments. I am not aware there was a woolen manufactory in the state.

Effect of Peace of 1815 on Product and Manufacture of Wool.

The Peace of Ghent, and the liberation of commerce which followed, exposed our infant manufactures, and our wool-growing, to the competition of the world. The exhaustion and derangement of our finances assisted in their overthrow. The revulsion from war prices to peace prices, in almost everything, was enormous, and it carried bankruptcy into every department of business, and mourning into every neighborhood of the land. Our manufactories perished. Merinos, which were valued at $1000 a head in 1809, sold for a dollar a head in 1815.* Speculating holders ceased, of course, to take any interest in them. Multitudes abandoned wool-growing altogether. Careless owners no longer paid any attention to preserving purity of blood. But the "most unkindest cut of all" that I ever heard of their receiving was the fear expressed, by an agricultural writer of that period residing in one of our northeastern counties, "that there was danger of the Merinos running out the native sheep."

* The well known G. W. Featherstonhaugh, one of our most active agricultural improvers, and himself a breeder of Merinos, states expressly that he had *seen* such sheep so sold. I have the same fact from other reliable sources. (See Featherstonhaugh's Letter to Stephen Van Rensselaer, on Sheep Husbandry, &c., Memoirs of the N. Y. Board of Agriculture, vol. 2, page 138.)

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United States Tariff Laws.

In 1816 a tariff law was enacted by the federal government* which imposed a duty of 15 per centum, ad valorem, on wool, and 25 per centum, ad valorem, on woolen manufactures.† The duty on the latter was to be reduced to 20 per centum after the expiration of three years.

This, as would be expected, produced no effect in favor of the growth of fine wools. There was little domestic demand for them. The Merinos continued without any considerable marketable value until 1824. They became completely lost to public notice, and there was many a choice flock of which no trace can now be found.

In 1824 a tariff was enacted which imposed a duty of 15 per centum, ad valorem, on wools costing less than 10 cents per pound at the place of export; 20 per centum on those costing more, until June 1, 1825; 25 per centum from that date to June 1, 1826; and 30 per centum afterwards. On manufactures of wool‡ it imposed a duty of 30 per centum until June 30, 1825, and 33⅓ per centum afterwards.

The decided protection thus afforded to wool and its fabrics, conspired, with other circumstances, again to turn the attention of farmers to the production of that staple. Among these auxiliary circumstances is to be mentioned the arrival of Saxon sheep in our country. The most extravagant ideas were formed of their value. The country, after so long a rest, was ready for another wool mania, and it set in.

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* Of the preceding general tariffs, that of 1789 imposed a duty of five per cent. ad valorem on woolens, and made all wools free of duty. The tariff of 1790 re-enacted the same provisions, and imposed a duty of 7½ per cent. ad valorem on carpets, carpeting and wool hats. The tariff of 1792 again made wool free of duty, and imposed a duty of five per cent. ad valorem on woolens, except on carpets, stockings, mittens and hats, on which it imposed a duty of 10 ditto. The tariff of 1794 raised the duty on carpets, stockings, mittens and wool hats to 15 per cent. ad valorem; imposed a duty of 10 ditto on ready-made clothing, and also on "all goods, wares and merchandize not otherwise enumerated or described." This provision included wool. The tariff of 1800 made no changes in the rates of duty on woolens, but raised the duty on the non-enumerated articles (including wool) paying a duty of 10 percent. under preceding law, to 12½ per cent ad valorem. The tariff of 1804 (to raise Mediterranean fund) added 2½ per cent. to *all* existing ad valorem duties. The tariff of 1812 doubled all *permanent* duties before imposed by law. This was followed by the tariff of 1816.

† Except on wool hats, caps and clothing, which paid a duty of 30 per cent. ad valorem; stockings 20 ditto; blankets, rugs, worsted goods and stuff goods 15 ditto; yarn four cents per pound.

‡ There were some exceptions. On blankets, worsted stuff goods and woolens not exceeding 33⅓ cents a yard, the duty was 25 per cent.; and on carpets a specific duty of 50 cents a square yard.

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Introduction of Saxon Merinos.

The following statement of the Saxon importations was embodied in that report on sheep which, as already mentioned, I made to the State Agricultural Society in 1838. The facts were furnished by one of the members of the committee, the late Henry D. Grove, of Hoosic.*

"The first importation of Saxony sheep into the United States was made by Mr. Samuel Henshaw, a merchant of Boston, at the instance of Col. James Shephard, of Northampton. They were but six or seven in number. In 1824 Messrs. G. & T. Searle, of Boston, imported 77 Saxon sheep. They were selected and purchased by a Mr. Kretchman, a correspondent of the above firm, residing in Leipsic, and shipped at Bremen on board the American schooner Velocity. I was engaged to take charge of the sheep on the passage, and I also shipped six on my own account. I am sorry to say that as many as one-third of the sheep purchased by Kretchman (who shared profit and loss in the undertaking) were not pure blooded sheep. The cargo was sold at auction at Brooklyn, as 'pure blooded Electoral Saxons,' and thus unfortunately in the very outset the pure and impure became irrevocably mixed. But I feel the greatest certainty that the Messrs. Searle intended to import none but the pure stock. The fault lay with Kretchman. In the fall of 1824, I entered into an arrangement with the Messrs. Searle to return to Saxony, and purchase, in connection with Kretchman, from 160 to 200 Electoral sheep. I was detained at sea seven weeks, which gave rise to the belief that I was shipwrecked and lost. When I finally arrived the sheep had been already bought by Kretchman. On being informed of what the purchase consisted, I protested against taking them to America, and insisted on a better selection, but to no purpose. A quarrel ensued between us, and Kretchman even went so far as to engage another to take charge of the sheep on their passage. My friends interposing, I was finally induced to take charge of them. The number shipped was 167, fifteen of which perished on the passage. They were sold at Brighton, some of them going as high as $400 to $450. A portion of this importation consisted of grade sheep, which sold as high as the pure bloods, for the American purchasers could not know the difference. It may be readily imagined what an inducement the Brighton sale held out to speculation, both in this country and Saxony. The German newspapers teemed with advertisements of sheep for sale, headed 'Good for the American market'; and these sheep, in many instances, were actually bought up for the American market at five, eight or ten dollars a head, when the pure bloods could not be purchased at from less than $30 to $40. In 1836, Messrs. Searle imported three cargoes, amounting in the aggregate to 513 sheep. They were about of the same character with

* This gentleman was born and educated to the duties of a shepherd and flockmaster, in Prussian Saxony; and I am sure I shall give no offence in expressing the opinion that he was the best practical shepherd of his day in our country. Mr. Grove was an ardent, decided man, prejudiced by early associations for the favorite sheep of his native country, and by the fact that his own skill produced exceptional results in their favor, and thus gave them an entire advantage when brought into comparison with rival varieties or flocks which were less perfectly managed. But where he states any fact on his own knowledge, it can always be implicitly relied on. The German fatherland never sent out a more incorruptible son.

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their prior importations; in the main good, but mixed with some grade sheep. On the same year a cargo of 221 arrived, on German account, Emil Bach, of Leipsic, supercargo. A few were good sheep and of pure blood; but taken as a lot they were miserable. The owners sunk about $3000. Next came a cargo of 210, on German account, Wasmuss and Multer owners. The whole cost of these was about $1,125 in Germany. With the exception of a small number, procured to make a flourish on in their advertisements of sale, they were sheep having no pretensions to purity of blood. In 1827, the same individuals brought out another cargo. These were selected exclusively from grade flocks of a low character. On the same year the Messrs. Searle made their last importation, consisting of 182 sheep. Of these I know little. My friends in Germany wrote me that they were like their other importations, a mixture of pure and impure blooded sheep. It is due, however, to the Messrs. Searle to say, that as a whole, their importations were much better than any other made into Boston.

"I will now turn your attention to the importations made into other ports. In 1825, thirteen Saxons arrived in Portsmouth. They were miserable creatures. In 1826, one hundred and ninety-one sheep arrived in New York, per brig William, on German account. A portion of these were well descended and valuable animals. The rest were grade sheep. In June, the same year, the brig Louisa brought out 173, on German account. Not more than one-third of them had the least pretensions to purity of blood. Next we find 158, shipped at Bremen, on German account. Some were diseased before they left Bremen, and I am happy to state that twenty-two died before their arrival in New York. All I intend to say of them is, that they were a most curious and motley mess of wretched animals. The next cargo imported arrived in the brig Maria Elizabeth, under my own care. They were 165 in number, belonging to myself and F. Gebhard, of New York. These sheep cost me $65 a head when landed in New York. They sold at an average of $50 a head, thus sinking about $2,400! I need not say that they were exclusively of pure blood. A cargo of 81 arrived soon after, but I know nothing of their quality. The next importation consisted of 184, on German account, per brig Warren. With a few exceptions they were pure blooded and good sheep. We next have an importation of 200 by the Bremen ship Louisa. They were commonly called the 'stop sale sheep.' They were of the most miserable character, some of them being hardly half grade sheep. The ship Phebe Ann brought 120 sheep, of which I know little; and sixty were landed at Philadelphia, with the character of which I am unacquainted. Having determined to settle in America, I returned to Saxony, and spent the winter of 1826–7 in visiting and examining many flocks. I selected 115 from the celebrated flock of Macherns, embarked on board the ship Albion, and landed in New York June 27, 1827. In 1828 I received 80 more from the same flock, selected by a friend of mine, an excellent judge of sheep. I first drove them to Shaftesbury, adjoining the town of Hoosic, where I now reside. On their arrival they stood me in $70 a head, and the lambs half that sum."

The fires of speculation might have died out and a reaction ensued, when the unsuitableness of these sheep for our climate and systems of husbandry became apparent, had any time been given for cool reflection. But the year 1825 brought another of

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those pecuniary revulsions, which periodically sweep like desolating tornadoes over our country. This is not the place to investigate its causes. The friends of the "American System," as the friends of high protective tariffs were then called, attributed it to our excessive importations from Europe, and these views prevailed so far that the tariff of 1828 was enacted.

U. S. Tariff Laws since 1824.

The tariff of 1828 imposed a specific duty on wool of four cents per pound, and in addition thereto an ad valorem duty of 40 per cent. until 30th of June, 1829, when an additional duty of five per centum was to be added, and that amount annually, till the additional duty ad valorem amounted to 50 per centum: on manufactures of which wool formed a component part,* an ad valorem duty of 40 per centum until June 30, 1829, afterwards 45 per centum: on manufactures of wool which exceeded $4 the square yard, 45 per centum until June 30, 1829, and afterwards 50 per centum: on manufactures of wool (except flannels and baizes) not exceeding 33⅓ cents, 14 cents per square yard: on blankets, hosiery, ready made clothing, etc., 35 per centum: on the three most valuable kinds of carpets, 70 cents per square yard; the two next best kinds 40 cents; the lower grades 32 cents. And the principle of minimums was now first applied to woolen tariffs, practically to increase the duties on the cheaper imported fabrics. Thus those not exceeding 50 cents per square yard were deemed to cost 50 cents;† those exceeding 50 cents and not exceeding $1, were deemed to cost $1; those exceeding $1 and not exceeding $2.50, were deemed to cost $2.50; those exceeding $2.50 and not exceeding $4, were deemed to cost $4.

The events, in manufacturing and wool growing circles, which followed the tariff of 1828, may not have been solely due to that law. However this may be, the facts themselves admit of no dispute. Both the manufacturers and producers were excited beyond the bounds of sober reason.

The scenes exhibited among the latter would be remembered with amusement, had not their results proved so injurious to public and private interests. Intelligent and enterprising far-

* Excepting carpetings, blankets, worsted stuff goods, bombazines, hosiery, mits, gloves, caps and bindings.

† With the exceptions expressed in preceding note.

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mers pulled down their barns to build greater, or, at least, made the most costly preparations for growing wool, and then sent one hundred or one thousand miles to purchase Saxon sheep at $100 or $500 a head. When the prodigies arrived, with what a blank look the proprietor, and with what an irrepressible titter the farm laborers, first surveyed the little strangers! If they had been exposed to storms and hardships on their journey, they did indeed present a very disconsolate appearance.

But who can see through the folly of his times? The public were in the midst of a fine-wool cyclone. The manufacturer and producer talked of the exquisite fineness of this or that clip—but whether the sheep which bore it yielded much or little, had good or bad carcasses, were hardy or feeble, was scarcely a matter of thought. Enormously exaggerated expectations of the future demand for Saxon wool were entertained; it was to increase with our increasing population; the tariff was to raise prices to the highest pitch; and then the tariff and the high prices were to stand for generations, if not forever. Aladdin's lamp was, plainly, discovered!

It is remarkable that this Saxon mania had so little effect, comparatively, on the estimated value of the descendants of the Spanish Merino in our country. They rose in value; but their chief value appeared to be considered as resting on the fact that they would grade up more rapidly than common sheep toward the Saxon standard of fineness—in other words, make a better cross with the Saxon! The idea that they had a separate value, approaching that of the latter, appears to have entered nobody's mind. Yet at that very time the average of Saxon wool was not ten cents higher a pound than Spanish, and the product of a Spanish sheep was worth more in market than the product of a Saxon sheep. Even the prices of fine wool did not rise until near the close of 1830. American producers of very fine wool have have ever fed on expectation, but never attained the fruition of their hopes.*

* I trust no former breeder of the Saxons will complain of the tone of these remarks, when I say, "quorum pars fui." I was the owner of sheep before I was a year old, and have remained so since. Thirty-two years ago I became the owner of a pure Spanish flock. Subsequently I purchased some Saxons, and was so gratified with the produce of a few picked sheep, that I bought and bred a flock usually numbering from 500 to 700. They were derived from the most celebrated flocks. I kept them several years and gave them a fair trial, before going back to the Spanish Merinos, which, very fortunately for myself, I had never entirely abandoned.

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I will now trace down an account of the subsequent tariffs, in connection, for the purpose of rendering a comparison of their provisions more convenient.

The tariff of 1828 produced a vast annual surplus of revenue over the expenditures of the government, and furnished means for a rapid extinction of the public debt. But the latter would be soon paid; the discontents of a portion of our people against the duties imposed by the law, were loudly expressed; and a change was felt to be necessary. This was made by the tariff of 1832.

This made wools not exceeding eight cents per pound in value at the place of export,* duty free; and imposed a duty on those exceeding that value, of four cents per pound and 40 per centum ad valorem; cloths not exceeding 35 cents per square yard, were to pay an ad valorem duty of five per centum, others 50 per centum; shawls and ready-made clothing 50 per centum; carpeting 63 and 35 cents per square yard; flannels, baizes, &c., 16 cents per square yard; various minor articles from 10 to 25 per centum.

This was a period of great inflation in the currency, and the proceeds of the immense sales of the public lands, together with the revenue collected, were still found greatly to exceed the wants of the government. This and the "nullification" of South Carolina led to the passage of what was termed the "compromise tariff" of 1833.

The tariff of 1833 commenced a system of progressive reductions in duties exceeding 20 per centum ad valorem, as follows: The reduction of one-tenth of such excess was to take place December 31, 1833, and a tenth of the residue of the excess at the same date each second year until 1841, when half the residue was to be deducted, and the other half on the 30th day of June following. The free wools (costing less than eight cents a pound) were to pay a duty of 20 per centum in 1842 and afterwards. The cloths which had paid five per centum (those costing not to exceed 35 cents a square yard) were immediately to pay 50 per centum, and then suffer the same biennial reduction in duties with the others.

* The bill provided that if wools were mixed with dirt or other material to reduce its value to eight cents, the appraisers should appraise it at such price "as in their opinion it would have cost had it not been so mixed."

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From 1833 to 1837 the plethora in the money market continued and increased. Imports became enormous—vastly exceeding those of any preceding period. They culminated in 1836. The following figures, in respect to manufactured textiles alone, will express the increase more readily than it can be done in words:

Imports.	Woolens.	Cottons.	Silks.	Linen & Flax.	Hemp.
1832.....	$9,992,424	$10,399,653	$9,248,907	$4,073,161	$1,640,618
1836.....	21,080,003	17,876,087	22,980,212	9,307,493	3,365,897

In many other articles the gain was proportionable. In the single one of sugar, the advance, during the same period, in the value of the import was from two to twelve millions of dollars. The aggregate value of imports in 1836 was $189,980,035; the aggregate duties $30,991,510; and the average per centum of duties on imports $16\frac{818}{1000}$. The sales of the public lands went on. The gradual reduction of the tariff of 1833 did not therefore bring down the public revenues to the scale of expenditure, and a surplus of twenty-eight millions of dollars accumulated and was deposited with the states.

An exigency, however, was approaching, which rendered it necessary to increase the duty on imports. The pecuniary revulsion of 1837 fell upon the country. In that year the import of woolens sunk to $8,500,292; and in the succeeding year it rose to only $11,512,920. Other imports decreased in a somewhat corresponding ratio. The sale of public lands fell off. The government debts were increasing; and all saw that under the pressure of the times, the manufacturers could not possibly sustain themselves under the minimum of protection to be reached by the "compromise tariff." This led to the tariffs of 1841 and 1842, and to the changes they made in the duties on wool and woolens.

The one year tariff of 1841 left the 20 per centum duties on woolens undisturbed, but struck out the 20 per centum duties on wools not exceeding eight cents in value at the place of exportation.

The tariff of 1842 imposed a duty of five per centum ad valorem on wools costing seven cents and under, and raised it on higher wools to 30 per centum ad valorem and three cents per pound specific duty; on manufactures of wool, except on carpets, &c., 40 per centum ad valorem; on carpets of different qualities respectively 65, 55 and 30 cents per square yard, and on lower

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grades 30 per centum ad valorem; on other woolen articles duties ranging from 15 to 35 per centum.*

The tariff of 1846 established an even ad valorem duty of 30 per centum on all wools and on cloths.† Under its operation many of the principal woolen manufactories of the United States failed, and the manufacture of broadcloth was entirely broken up.

The tariff of 1857 made all wools costing 20 cents or less, free of duty, and lowered the duties on other wools to 24 per centum ad valorem. The duty on the principal manufactures of wool was also lowered to 24 per centum ad valorem.‡

The tariff of 1861 places the duty on wools costing less than 18 cents, five per centum ad valorem; on wools exceeding 18 cents and not exceeding 24 cents, a specific duty of three cents per pound; on wools exceeding 24 cents, a specific duty of nine cents per pound; on woolen cloths, shawls and manufactures of every description, wholly or in part wool, not otherwise provided for, a duty of 12 cents per pound, and twenty-five per centum ad valorem; on the various descriptions of carpets, 25, 30, 40 and 50 cents per square yard; on shawls of which wool is the chief component, 16 cents per pound and 20 per centum ad valorem; on blankets, wholly or in part wool, of different values, respectively, 6 cents per pound and 10 per centum ad valorem, 6 cents per pound and 25 per centum ad valorem, and 12 cents a pound and 20 per centum ad valorem; on delaines, cashmere, etc., wholly or part wool, grey or uncolored, and other grey and uncolored goods of similar description, 25 per centum ad valorem. This bill contains so many provisions that no analysis of them can be presented here without consuming too much space. I have made out a table of them which I will subjoin in Appendix A.

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* Blankets not exceeding 75 cents each, 15 per centum ad valorem; all others 25 ditto; worsted not otherwise specified 30 ditto; hearth rugs 40 ditto; yarn, mits, gloves, caps, binding and hosiery, 30 ditto; coach laces 35 ditto; flannels, bockings and baizes, 14 cents per square yard.

† On carpets of wool of all kinds, ready-made clothing, caps, gloves, leggins, mits, socks, stockings, wove shirts, drawers, etc., not otherwise provided for, the duty was 30 per centum ad valorem; on manufactures wholly or in part worsted, woolen and worsted yarn, baizes, bockings, flannels and floor cloths, 25 per centum ad valorem; on blankets of all kinds, hats, hat-bodies and woolen listings, 20 per centum ad valorem.

‡ On cloths, carpets, delaines, ready-made clothing, rugs, &c., 24 per centum ad valorem; on worsteds, yarns, baizes, bockings, flannels, floor cloths, &c., 19 ditto; on all blankets, wool hats, &c., 15 ditto.

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Prices of Wool Since 1824.

The following table of the prices of wool in Boston for thirty-eight years, was prepared, at my request, by George Livermore, Esq., the eminent wool commission merchant of that city, whose name is an ample guaranty of its entire accuracy. It is undoubtedly the most extended list of wool prices which has ever been made out in our country from reliable data. The average, and not the extreme prices, for each quarter are given.

I have added a column indicating the tariff laws in force at the different periods.

Let me preface the table by stating that I learn from various sources that from 1800 to 1807 wool bore a low and mostly a nominal price in our country; that in 1807 and 1808 full blood Merino wool was worth about $1 a pound;† that it advanced in 1809 to about $2 a pound,‡ and continued at not far from that price during the war, some selling at $2.50 a pound; that in 1815 it again sunk to a low price, and so remained until 1824.

Prices Current of Wool in Boston.

Tariff and time of taking effect.	Year.	Quarter ending*	Fine.	Medium.	Coarse.
	1824.	January,	..	..	..
		March	70	45	33
June 30.		July	..	..	..
		October	60	40	30
	1825.	January	60	45	33
		April	..	..	..
		July	..	..	..
		October	..	..	..
Tariff of 1824.	1826.	January	..	..	..
		April	52	45	40
		June	37	30	27
		October	44	38	33
	1827.	January	37	33	28
		April	44	36	30
		July	36	31	26
		October	42	32	25
	1828.	January	40	30	25
		April	44	36	28
		July	48	40	33

* The prices, it will be observed, are not given strictly by *quarters* in the table anterior to 1827.

† Col. Humphreys, in a MS. letter lying before me, says that he sold for that price in 1807.

‡ In 1809 Chancellor Livingston sold his unwashed full blood wool for $2.00; seven-eighths blood for $1.50, three-fourths for $1.25; one-half blood for 75 cents; common for 37½ cents. See his Essay, pp. 185, 186.

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Tariff and time of taking effect.	Year.	Quarter ending	Fine.	Medium.	Coarse.
Sept. 1.		October	47	40	31
Tariff of 1828.	1829.	January	55	45	35
		April	43	35	30
		July	45	35	30
		October	38	31	27
	1830.	January	40	35	30
		April	48	38	32
		July	62	50	40
		October	70	60	47
	1831.	January	70	60	47
		April	70	60	50
		July	75	65	50
		October	70	60	50
	1832.	January	65	55	45
March 3.		April	60	50	40
Tariff of '32.		July	50	40	30
		October	50	40	30
	1833.	January	..	..	..
		April	..	..	..
		July	62	55	42
		October	65	55	45
Dec. 31.	1834.	January	70	60	47
		April	65	55	42
		July	60	50	40
		October	60	50	40
	1835.	January	60	50	40
		April	65	58	45
		July	65	58	45
		October	65	58	45
	1836.	January	65	58	45
		April	65	58	45
		July	70	60	50
		October	70	60	50
Tariff of 1833.	1837.	January	70	60	50
		April	70	60	50
		July	..	..	..
		October	50	40	33
	1838.	January	50	42	35
		April	50	42	35
		July	45	37	32
		October	55	48	37
	1839.	January	55	48	38
		April	55	48	38
		July	58	50	40
		October	60	52	46
	1840.	January	50	45	38
		April	48	41	36
		July	46	38	33
		October	46	38	33
	1841.	January	52	45	37
		April	52	45	37
		July	50	44	35
Oct. 1.		October	48	41	33
Tariff of 1841.	1842.	January	48	43	35
		April	46	42	33
		July	43	38	31
Aug. 30.		October	37	31	26
Tariff of 1842.	1843.	January	35	30	25
		April	34	29	25
		July	35	30	26
		October	36	32	26
	1844.	January	37	31	26
		April	45	37	30
		July	45	37	31
		October	50	42	33
	1845.	January	45	38	31
		April	45	38	33
		July	40	35	30
		October	38	34	28

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Tariff and time of taking effect.	Year.	Quarter ending	Fine.	Medium.	Coarse.
	1846.	January	40	35	30
		April	38	33	28
		July	38	33	28
Dec. 1.		October	36	30	22
	1847.	January	47	38	30
		April	47	40	31
		July	47	40	31
		October	47	40	30
	1848.	January	45	38	30
		April	43	37	30
		July	38	33	28
		October	33	30	22
	1849.	January	33	30	23
		April	42	36	30
		July	40	35	28
		October	42	36	30
	1850.	January	47	40	33
		April	45	38	31
		July	45	38	32
		October	45	38	35
	1851.	January	45	37	32
		April	50	44	40
		July	47	42	37
Tariff of 1846.		October	45	40	33
	1852.	January	42	37	32
		April	42	36	31
		July	45	38	32
		October	50	42	37
	1853.	January	58	55	50
		April	62	55	50
		July	60	53	48
		October	55	50	48
	1854.	January	53	47	42
		April	57	52	44
		July	45	37	30
		October	41	36	32
	1855.	January	40	35	32
		April	43	35	32
		July	50	40	33
		October	52	41	36
	1856.	January	50	38	35
		April	57	43	37
		July	55	43	38
		October	60	55	45
	1857.	January	58	50	43
		April	60	56	43
July 1.		July	56	48	40
		October	38	30	26
	1858.	January	40	33	28
		April	42	35	30
		July	42	37	30
Tariff of 1857.		October	55	42	36
	1859.	January	60	52	45
		April	60	46	37
		July	55	40	35
		October	60	49	42
	1860.	January	60	50	40
		April	52	45	40
		July	55	50	40
		October	50	45	40
	1861.	January	45	40	37
April 1.		April	45	37	32
Tar. of '61.		July	40	35	32
		October	47	47	52

From the beginning of 1827, from which the above prices present the averages of each quarter, to the close of 1861, a period

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of 35 years, the average price of fine wool was 50 $\frac{8}{10}$ cents; of medium, 42 $\frac{8}{10}$ cents; of coarse, 35 $\frac{1}{2}$ cents. Fine wool averaged 15 per centum higher than medium, and medium 14 per centum higher than coarse.

The wools classed in the table as fine, I should say included Saxon, grade Saxon, and choice lightish-fleece American Merino; the medium included American Merino and grade down, say to half blood; the coarse included wools one-fourth blood Merino and below. Each of these classes, of course, embraced wools of various qualities and prices.

Mr. George William Bond, wool broker of Boston, has prepared for me a valuable list of prices of Ohio State wools, extending back for twenty-one years; and Messrs. Tellkampf & Kitching, wool brokers of New York, a valuable list of prices of New York State wools. Both of the last named lists and some others will be found in Appendix B.

The following table was prepared for me by the Acting Register of the Treasury, at the request of my friend, Hon. R. H. Gillet, of Washington, D. C., former Register of the Treasury.

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STATEMENT

Exhibiting the value of Wool, and Manufactures of Wool, imported into and exported from the United States from 1840 *to* 1861, *both years inclusive.*

YEARS ENDING—	WOOL UNMANUFACTURED.				MANUFACTURES OF WOOL.			
	EXPORTS.			IMPORTS.	EXPORTS.			IMPORTS.
	Foreign.	Domestic.	Total.		Foreign.	Domestic.	Total.	
September 30, 1840	$26,246	.....	$26,246	$846,076	$418,399	.....	$418,399	$9,071,184
do 30, 1841	44,226	.....	44,226	1,091,953	171,814	.....	171,814	11,001,939
do 30, 1842	90,865	.....	90,865	797,382	145,123	.....	145,123	8,375,725
June 30, 1843	34,651	.....	34,651	248,679	61,997	.....	61,997	2,472,154
do 30, 1844	.....	.....	.....	851,460	67,483	.....	67,483	9,475,782
do 30, 1845	22,153	.....	22,153	1,689,794	156,646	.....	156,646	10,666,176
do 30, 1846	41,571	$203,996	245,567	1,134,226	147,894	.....	147,894	10,083,819
do 30, 1847	37,302	89,460	126,762	555,822	315,894	.....	315,894	10,998,933
do 30, 1848	1,840	.....	1,840	857,034	179,781	.....	179,781	15,240,883
do 30, 1849	6,891	.....	6,891	1,177,347	201,404	.....	201,404	13,704,606
do 30, 1850	.....	.....	.....	1,681,691	174,934	.....	174,934	17,151,509
do 30, 1851	7,966	.....	7,966	3,833,157	267,379	.....	267,379	19,507,309
do 30, 1852	54,285	.....	54,285	1,930,711	256,878	.....	256,878	17,573,964
do 30, 1853	51,387	.....	51,387	2,669,718	343,989	.....	343,989	27,621,911
do 30, 1854	41,668	.....	41,668	2,822,185	1,262,897	.....	1,262,897	32,382,594
do 30, 1855	131,442	27,802	159,244	2,072,139	2,327,701	.....	2,327,701	24,404,149
do 30, 1856	14,997	27,455	42,452	1,665,064	1,256,632	.....	1,256,632	31,961,793
do 30, 1857	920	19,007	19,927	2,125,744	437,498	.....	437,498	31,286,118
do 30, 1858	824,898	211,861	1,036,759	4,022,635	197,902	.....	197,902	26,486,091
do 30, 1859	32,141	355,563	387,704	4,444,954	220,447	.....	220,447	33,521,956
do 30, 1860	37,280	389,512	426,792	4,842,152	201,376	.....	201,376	37,937,190
do 30, 1861	48,299	237,846	286,145	4,717,350	317,340	.....	317,340	28,487,166
	$1,551,028	$1,562,502	$3,113,530	$46,077,273	$9,131,408	.....	$9,131,408	$429,422,951

TREASURY DEPARTMENT, REGISTER'S OFFICE, *Feb.* 12, 1862.

J. A. GRAHAM, *Acting Register.*

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The value of the annual imports of manufactures of wool, for nineteen preceding years, and a table exhibiting what proportion of the imports of wool, for a number of years, fell below the dutiable price, will be found in Appendix C.

The following, extracted from the Report of the Boston Board of Trade on Wool, in 1859, was "furnished by George Wm. Bond, a member of the Board, and by George Livermore, a member of the Government of the Board."

WOOLEN MACHINERY.

Table showing the quantity and classification of Woolen Machinery in New York and New England.

	Maine.	N. Hampshire.	Vermont.	Massachusetts.	Connecticut.	Rhode Island.	New York.
Satinets	9	3	22	165	112	33	20
Cassimeres	28	40	44	285	95	82	103
Cotton warp cloths and carp,	..	..	..	82	..	..	31
Stocking yarn and hosiery	6	12	6	30	74	..	33
Worsted and woolen yarn	..	10	..	76	..	8	..
Blankets and flannels	40	81	11	185	19	..	33
Delaine	..	58	..	67	..	..	..
Carpets	..	2	..	62	70	..	47
Cashmeretts	..	4	..	5	..	..	..
Shawls	..	..	..	10	..	7	26
Feltings	..	..	..	14	30	..	..
Negro cloths and jeans	..	..	..	..	..	53	..
Linsays and dometts	..	..	..	..	..	42	..
Sundries*	8	18	39	18	9	..	148
Total number of sets	91	228	122	999	409	225	468
No. of establishments	32	56	56	154	93	56	206

The above classification is not strictly accurate, as it is impossible in some mills to say how many sets are on each description.

Mr. Bond writes me (January 20, 1862 :) "In the rest of the free states there are about 500 sets of cards, as nearly as I can reach it."

Mr. Livermore writes me (January 26, 1862 :) "I should not like to assert that there is not a broadcloth manufactory in New England, though I do not know of any machinery, now running, of that kind of goods."

A manufacturer of standing, in our state, who made broadcloths prior to 1846, writes me, (January 23, 1862,) that there are no broadcloths made in the United States, so far as he knows, except such as are made for the army and navy; and a few cotton warp cloths called "Union."

* Those classed sundries are very small.

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I have presented the preceding statistics, because they embrace facts which are inseparably and importantly connected with the progress of sheep and wool husbandry in the United States; and without them much of the history I am sketching would be meaningless—a mere record of apparently casual events. I had contemplated accompanying them with similar statistics of the woolen production, trade and legislation of other nations; but I found that while those of them which could be obtained in this country would swell this paper to a volume, they still would lack a satisfactory degree of completeness without sending to Europe for more, for which there would be no time.

Having presented a class of facts, the mutual relations and bearings of which have been made the topics of much partizan discussion—which in some cases, indeed, have constituted what are termed "issues" between parties—I feel constrained to omit my own deductions and conclusions in respect to them, leaving every person to form his own opinions on the subject.

Decline in the Production of Fine Wools.—The Spanish supersedes the Saxon Merino.

The small difference made in the prices of different qualities of wool, in our country, necessarily proved fatal to the success of the Saxon Merino. The improvement of the imported sheep in the hands of such breeders as Mr. Grove, Mr. Scoville, of Connecticut, Mr. Reed, of Pennsylvania, Messrs. Wells & Dickinson, of Ohio, Mr. Cockrill, of Tennessee, and many others, was manifest; and in some cases it more than kept pace with what may be termed the reform movement of Baron Von Sternburg, Prince Lichnowski, and their compatriots in Germany.

Two years after the introduction of the Saxons (i. e. in 1826) the average price of their wool sunk within ten cents of that of full blood Merino wool. It never subsequently rose to any higher proportionable price, while the difference was frequently only five or eight cents a pound. The best breeders of pure Saxons, who owned large flocks, could not bring up the mean product of their whole number to three pounds of wool per head. In 1840, Mr. Grove's admirable flock—not exceeding about 200 sheep—yielded an average of 2 lbs. 11 oz. per head, and he published this product* as a proof of the value of his favorite breed, in that controversy

* See his letter to me, Transactions N. Y. State Agricultural Society, 1841, p. 333.

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between the advocates of the Saxon and Spanish Merinos which was then filling our agricultural publications.

This controversy opened about 1835. The Saxons had by far the greatest number of distinguished names, but the Spanish sheep had nearly all the facts on their side. As early as 1831-2, Mr. Jarvis' full blood Merinos yielded about four pounds of wool per head. And persons who obtained small choice lots of him, from the period of 1835, could obtain ewes yielding nearly or quite 4½ lbs. per head. In 1835, Francis Rotch, the celebrated cattle and sheep breeder of Morris (then Louisville) New York, published the statement that his flock of Spanish Merinos yielded an average of 4½ lbs. of "well washed wool." My own flock, larger than Mr. Rotch's, yielded an equal amount. This was also undoubtedly true of the flock of Stephen Atwood, of Woodbury, Connecticut; of John T. Ritch, of Shoreham, Vermont; and of many other flocks descended from those of the two last named gentlemen.

And the Spanish sheep, then the subject of great attention—and of attention directed specially towards increase of fleece—was rapidly adding to the disparity between itself and the Saxon in this particular. In 1844, I purchased a small lot of Rich ewes in Vermont, which yielded an average of five pounds of washed wool, at a year old. The same year a little flock of thirty (descended from Col. Humphreys' sheep) yielded me an average of 5 lbs. 13⅛ oz. of washed wool.*

In 1845, Mr. Stephen Atwood wrote to the author of the American Shepherd, that his flock consisted of 150, half ewes and half rams and wethers; that his ewes yielded five pounds of washed wool per head, and his lambs an equal amount; that his wethers yielded six pounds, and his rams from seven to nine pounds; that his heaviest ewe's fleece in the preceding spring was 6 lbs. 6 oz., and the heaviest ram's fleece 12 lbs. 4 oz.

It is my impression that several other small flocks, whose product of wool was published at that period, yielded

* Two of the number were rams, and four of the ewes had two years' fleeces on—but, on the other hand, a portion of them were yearlings and two year olds, which, yeaned at the customary time and treated in the customary way in my flock, always fall considerably short of the fleece of grown sheep. My impression at the time was, that the fleeces of the 28 ewes, including the double ones, did not weigh more than would the fleeces of the same sheep at three or four years old, without any double ones. The sheep were not housed except in winter, and were wholly unpampered. See my detailed statement of their keep, &c., in Transactions N. Y. State Ag. Society, 1844. They drew the first premium of the Society for best managed flock.

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about the same amount; but none of those statements are at hand.

Many of the Saxon breeders strove to shut their eyes to such facts as the preceding. They called loudly for more discriminating prices from the manufacturers, and for high protective tariffs from the Government. The first did not come; the last did not remain. The financial crash of 1837 carried the price of Saxon wool absolutely below a remunerative point. There was a very brief rally towards the close of 1839, but it again sunk to the non-remunerative point, and *has never since regained it*. From that period the difference in the prices of Saxon and Spanish Merino wool has not usually exceeded five or eight cents per pound. After that failure of our broadcloth manufacturers which followed the tariff of 1846, the breeders of Saxons gave up all hope, and rapidly relinquished their flocks or crossed them with other breeds or varieties.

The American Merino.

When the Saxon sheep disappeared, the improved Spanish Merino again came into general favor. Thus far I have used the term "Spanish" in speaking of them, but it is quite time to change our ovine nomenclature in this particular. France and Saxony have produced distinct and self-sustaining* varieties of the Merino, and given them their national names. The American variety, though departing far less essentially from the original standard of the race, is equally distinct and equally self-sustaining. Let us then hereafter talk of American instead of Spanish Merinos, unless we mean by the latter designation the present inferior sheep of Spain.

The American Merinos, when again brought into public favor between 1840 and 1845, were found divided into several as well marked families as were their Leonese ancestors in 1800. This arose partly from the preservation of the original family blood unmixed, and partly from the courses of breeding adopted by their owners.

Premising that the order in which I place them implies no attempted gradation as to merit, I will proceed to describe:

1. Mr. Jarvis', or the Mixed Leonese sheep of the United States. What varieties of his imported sheep he bred together has already been made to appear. Those of their descendants which I saw

* That is, reproducing their characteristics in their offspring with regularity.

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twenty years ago, were not perhaps quite as light in weight, long in the legs and neck, and narrow in the carcass as the Spanish sheep measured by Petri, but they were equally remote from the compactness and substance of the American sheep, whose measurements are subjoined to Petri's table, or of the family I shall describe as No. 3. Their skins were thin, loose, and usually exhibited but few corrugations, and these were confined to the ram and to the neck of that animal. They had but a small amount of external gum, and were accordingly quite white—whiter than any Spanish sheep imported into this country except the Escurial. They had little wool below the eyes or below the knees and hocks. Their wool was long, but shorter on the belly, and of medium thickness. On a portion of them it divided about the shoulders and fore parts into those small pointed tufts which indicate thin wool. The fleece was very fine, very even, and opened on a high tinted, rosy skin, with a brilliancy and style which almost rivalled the Saxon. The yolk was thin, colorless, and easily liberated in washing. I have never seen any other Merino wool so closely resembling Saxon, or of so profitable a character to the manufacturer. Altogether the sheep bore an obvious likeness to the Spanish Escurial, and I have no doubt that Mr. Jarvis gave a preference to rams of that variety while he was forming his mixed family. They were, however, a heavier fleeced, and for this country, a more valuable sheep than those of the Royal cabana of Spain.

2. I take up these next as the descendants of an older importtation than No. 3, and I am almost inclined to dub them the American Infantados. They were bred from rams and ewes of Col. Humphreys' importation, by Stephen Atwood, of Connecticut.* I think that in 1840 they were about as heavy sheep as

* Mr. Atwood writes me that in the spring of 1813 he bought a ewe of Col. Humphreys for $120, and put her to a ram "that Younglove Cutler bought of Col. Humphreys in 1807." This was the starting point of his flock. He put their descendants to rams raised from Col. Humphreys' sheep in his neighborhood, until about 1830, after which period he used rams of his own raising. This is the distinct and positive statement of a man whose character is considered good by those who know him. It has been uniformly made and persisted in by him from a period long anterior to the time when the public attached any particular importance to the fact whether the sheep were descended *exclusively* from Col. Humphreys' importation or not. Though I own sheep of this family, I have*ver* regarded that point of particular importance; and I commenced sifting out the facts on the present occasion leaning towards the opposite belief. But I find Mr. Atwood's statements persistent, coherent, reasonable in themselves, originally made under no peculiar motive of interest, and he certainly ought to know the history of his own flock better than those who are not even his near neighbors. To the

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Mr. Jarvis', and had the same Spanish figure—that is to say, they were taller, thinner, longer necked and finer boned than our present Merinos. I should say they were a little flatter in the ribs than No. 1, and a little deeper in the chest. They were peculiarly deep-chested, and not only had a very marked Spanish appearance, but the marked individuality of sheep from one cabana. Their skins were mellow, loose, and of a fine deep color. The ram had a pendulous dew-lap, and some moderate sized neck-folds. Some of the ewes had dew-laps, but otherwise their skins were free from corrugation. The external color of the fleece was very dark, sometimes a pitchy black, shining and sticky in hot weather, and forming a rigid crust in cold weather. The inside was so filled with yolk that every fibre seemed to have been dipped in it, and it often stood in small globules between the fibres. The inside yolk was thin, generally colorless, and perfectly limpid. The sheep were not wooled below the eye, knee and hock. The wool was rather short—considerably shorter than that of No. 1 and No. 3, and did not carry out its length so well on the belly, forehead, cheeks and legs near the knees as No. 3. The wool stood thicker than on No. 1, and often seemed vastly thicker when grasped by the hand externally, by reason of its gummy coating. I saw some, however, which, under this gummy coating,

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only individual who has, so far as I know, impeached the accuracy of Mr. Atwood's statements I recently applied for a history of his own flock, only for the purpose of giving him the place and credit to which I supposed him entitled as a breeder of the pure descendants of imported Merino sheep. Something in the reply, and something in another letter received at the same period, induced me to question him in relation to Mr. Atwood's flock. He says that prior to about the year 1822, Mr. Atwood's sheep were Negrettis—"the hardest kind of Spanish sheep;" that Atwood then bought of him (my informant) a ram got by a ram "bred by Daniel Bacon, out of his imported Escurial buck;" that some years after, Mr. Atwood hired a buck of ——— (name illegible) that was got by his (my informant's) "best Escurial buck;" that "from these two bucks he (Atwood) has obtained his great credit." My informant says his own ewes were Infantados. (See preceding note where the importation of Atwater and Peck is spoken of.) Admitting the sale, purchase and hiring above alleged, does it prove anything? Mr. Atwood not only bought or hired, but *used* a Saxon ram one year; but, wiser than his neighbors, promptly abandoned him and weeded all his lambs out of the flock. If there was any Merino flock in the United States specially unlike the Escurials, it was Mr. Atwood's twenty years ago, and the same is true now. How, then, could his flock have obtained "their credit" from Escurial rams! What authority has my informant for pronouncing sheep notoriously bred from a ewe from Col. Humphreys' own flock, to be Negrettis, and "the hardest kind of Spanish sheep?" Judge of my astonishment when I find the same person claiming, in a *published* letter 17 years ago, that his own sheep, instead of being originally Infantados, were "*a part of them Negrettis* and a part Montarcos!" These slips of memory at least admonish us that similar ones may have occurred in other instances. Again I say the matter is of little consequence, except as one of justice to an old breeder who deserves well of the public; and when such details are given at all, they should be correctly given.

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had thinnish wool. The quality and style of the wool were excellent. Its curves were especially bold and showy, and were continued regularly throughout the entire length of the fibre, showing even on the tips. The fleece had great evenness, and nothing approaching to hair in any part. The sheep had not the appearance of being as hardy or as easily kept as No. 3. To my eye they looked like animals which had attained great uniformity and strong points of excellence by in-and-in breeding, but that this had been carried so far that they were on the point of losing constitution. It would seem, however, that this opinion was unfounded, for we now have flocks of their unmixed descendants which, after twenty years more of in-and-in breeding, have been converted into low, compact, strong, heavy and hardy sheep.

3. The American Paulars. They were purchased of the importer by Andrew Cock, a breeder of character residing near Flushing, Long Island.* They were sold in 1823 to Hon. Charles Rich, M. C., and Leonard Bedell, of Shoreham, Vermont. Twenty years ago they were heavy, low, broad sheep, full in the bosom and buttocks, with strong bones, thick short necks, and thick coarse heads. The ewes had deep, pendulous, and sometimes plaited dewlaps, and folds of moderate size about the neck; the rams had both in a greater degree. The external color of the fleece was dark leaden gray, or blackish, indicating considerably more yolk than No. 1, and considerably less than No. 2. They were not wooled below the eye, and not commonly below the knee and hock.† The wool was long, and retained its length unusually well on the belly, forehead, cheeks, and on the legs down to the knees and hocks. It was very thick over all the parts, and in many instances broke into masses of the same size on the belly as on the sides, instead of the small pointed tufts usual in that place on No. 1 and No. 2. This indicated great thickness of fleece. The fleece was considerably inferior to that of the preceding families in fineness, evenness and general style. It was sometimes quite coarse on the thigh, and hairs were occasionally seen protruding from the edges of the neck folds. The lambs were often covered with hair when born, and their big, bony legs and thick coated ears were marked with patches of tan

* Their full pedigree, sustained by the most ample testimony—testimony never since disputed—was published in the American Agriculturist and Cultivator, in 1844.

† I speak of wool of length and quality fit to be put in the fleece when sheared. Nearly all of them had short, coarsish wool on the legs, and particularly on the hind legs.

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color. On the ears this color continued to show faintly, on close examination, through life. They were better nurses and hardier than either of the other families: they were precisely the *negligent farmer's sheep*. I have often seen a flock of them, slightly sheltered by a haystack, stand composedly chewing their cuds, and treading down the drifting snow under their feet, when the wild northwest gale "curled up" every other shivering animal on the farm.*

4. I do not intend specially to classify under this head, and attempt to describe, any separate family. Chancellor Livingston's flock, I have understood, was preserved by his descendants until about 1840, and for aught I know, later. Of its later history and character I know nothing. There were a number of breeders in all the Northern and Eastern states, who commenced flocks with imported Spanish Merinos. Most of them crossed with the Saxons after 1824, and lost the Spanish characteristics. But there were exceptions in probably nearly every state where the Merino was established. I know of several such instances in New York, but the flocks have not attained sufficient excellence to deserve special mention now, or they have been so crossed with other flocks—and particularly with those classified under the three preceding heads—as to retain no distinct and separate family character. Most of the early flockmasters of New York were men of large possessions, and were rather wool growers than breeders. In other words, the production of wool was the primary consideration with them, instead of the production of a small annual surplus of rams and ewes to be sold at extra prices for breeding purposes. On the other hand, several persons in Connecticut and Vermont fortunately devoted themselves specially to breeding, and in their ardor to improve and to excel

* It may not be amiss to state that on the 8th of February, 1862, a number of the most prominent breeders and friends of these respective families of sheep, in Addison county, Vermont, met me by appointment at the house of Hon. M. W. C. Wright, of Shoreham, and conceiving that it was a subject on which they had a right to be heard, I read to them the preceding descriptions of their sheep as they were twenty years ago; my account of the results of crossing these families, (presently to appear,) and, indeed, everything pertaining to their sheep in this paper, except the references to and descriptions of their *present individual flocks*, which I did not read—which, indeed, were not then written.

I solicited these gentlemen to correct my statements wherever they thought I had fallen into error, apprising them that if after such an invitation they should fail to do so, they, as much as myself, would be committed to the accuracy of my assertions. No corrections were offered, but on the contrary, Messrs. Hammond, Rich, Wright and others expressed their unqualified affirmative assent to those assertions.

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each other and the Saxon breeders, made great and beneficial changes in the characteristics of the breed. Accordingly, when the restoration of the American Merinos to public favor took place, about 1845, New England had choicer individual sheep than New York, and there was a general importation of them, and especially of breeding rams, from the former into the latter, and into the other states lying west of New England. These importations superseded the families existing in those states, or were blended with them, and thus merged the individuality of the latter as separate families. From that period, the American Paulars and Infantados* have been bred distinct in all parts of our country. Those who then procured Mr. Jarvis' "mixed Leonese" sheep, have generally since crossed them with one or both the other families.

It would be an instructive lesson could I accurately trace out the modes and the results reached by the most noted breeders of these separate or mixed families. To attempt it without long and minute investigation, would be not only unfair, but excessively presumptuous; and even after the most careful examination, it would be a very delicate affair, to say the least of it, to assume to sit in judgment on the comparative merits of flocks which are now keen competitors for public favor, and concerning which the opinions of the most intelligent and experienced flock-masters differ. Accordingly I shall waive it, after reserving to myself the right of selecting some examples when I come to discuss the subject of crossing.

Suffice it to say, that each of the separate families and the crosses between them, or between them and other pure American Merino stocks, have improved enormously within twenty years.

The American Merinos, the measurements, etc. of which I subjoined to Petri's table, exhibit some of the marked changes which have taken place in the form of the breed not only since their orignal importation, but within the last twenty years. And if that table had been more complete in *useful* data, these facts

* I have no wish to impose a new name on the public for the "Atwood sheep," as they are commonly termed, but I adopt this designation myself, first, because I believe it to be the correct one; secondly, because it is convenient and proper to have a family name for these well known sheep; and thirdly, because I can see no propriety in giving them permanently the name of an individual, who, if he deserves (as he undoubtedly does) great credit for preserving their blood unmixed, and effecting considerable improvements on the original stock, neither imported them nor brought them to their present high degree of perfection. If they are to be named after any man, that man should be Col. Humphreys.

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would be still more apparent. The American sheep, weighed and measured for that table, were not, as already remarked, extraordinary ones in any particular pertaining to the carcass—were such as can be found in abundance in any prime flock. When their length of leg, neck and body, and breadth of hip are compared with each other and with their weight, their compactness and massiveness of form become a necessary corollary; and here the disparity between them and the original Spanish sheep is most striking. The longer neck and legs, and shorter bodies of the latter, remind us of the Saxons.

The improvement of the fleece has kept pace with that of the form. In prime flocks, the quality is at least as good as that of the original Spanish sheep, while the quantity has more than doubled.

The very best Merinos imported into the United States between 1800 and 1813, yielded from 3½ to 4 lbs. of brook washed wool in the ewe, and from 6 to 7 lbs. in the ram. Mr. Dupont's Don Pedro, the heaviest fleeced imported Spanish Merino ram, I think, on record, produced 8 lbs. 8 oz., of brook washed wool. We have seen that ewes in small flocks, descended from the above, yielded an average of 4½ lbs. of wool, washed in the same way, as early as 1835. In 1844–45, the product had risen to 5 lbs. in some small flocks; that of rams to 9 lbs., and in individual instances much higher.* At the present day it is easier to find small flocks yielding an average of 6 lbs. of washed wool, than it was in 1845 to find those yielding 5 lbs., or in 1835 those yielding 4½ lbs.

I speak of "small" flocks, because in large ones equal averages are never obtained. It would be difficult, and probably impracticable at this time, to find a flock of 400 or 500 ewes, kept in the ordinary way, which would produce an average of more than 5 lbs. of well washed prime Merino wool. But from these, 100 could be drawn, which, subdivided into a couple of flocks, given "the range" of an entire farm in summer and well kept in winter, would yield a pound more of wool a head. The heaviest fleeced 50 of this hundred, bought by a breeder, protected from

* See preceding statement of Mr. Atwood, that in 1845 his heaviest ewe's fleece was 6 lbs. 6 oz., and his heaviest ram's fleece 12 lbs. 4 oz. My premium ram's *first* fleece in 1844, was 10 lbs. of well washed wool. In 1847, a ewe of mine produced 7 lbs. 10 oz. of well washed wool. (See portrait of her in Sheep Husbandry in the South, p. 134.) In 1849, a ram of mine yielded 13 lbs. and two or three ounces of well washed wool. I think that Mr. Atwood *then* probably had rams which exceeded that amount.

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all storms, and pampered for show, would yield nearly 7 lbs. of washed wool a head, and a few scattering ones from 8 to even 9 lbs. Should one of the very heaviest fleeced ewes of the flock fail to have a lamb at two or three years old, and become very fat, she might produce 10 lbs. of wool the succeeding year. Prime rams *unwashed and housed from storms from the middle of August to shearing*,* produce from 18 to 20 lbs., and occasionally if large and very highly kept, two, three, and even five pounds more.

Introduction of the French Merino.

When the American Merino started on his second and rapid march of improvement, he soon found a new foreign competitor for public favor in the field.

Mr. D. C. Collins's importation of French Merinos in 1840, has already been alluded to in the extracts I have published from Mr. Taintor's letter. These sheep found a warm admirer and advocate in Anthony Benezet Allen, the very able editor of the American Agriculturist, and they were consequently brought rapidly into public notice. Mr. Allen attended Mr. Collins' shearing in 1843. He considered the wool quite equal to the best of that of Spain. It opened with a brilliant creamy color on a rich, soft, pink skin, which was excessively loose and corrugated. The sheep were of fine form, he thought of excellent constitution, and from one-tenth to one-fifth larger in carcass than American Merinos. "Grandee," the choicest imported ram,† had, at three years old in France, sheared 14 lbs. unwashed wool. In 1842 his unwashed fleece weighed 12¾ pounds. He was 3 feet 8½ inches long "from the setting on of the horns to the end of the rump," and weighed in fair condition about 150 pounds. Mr. Allen found the average weight of the ewes' unwashed fleeces in 1843 to be 6 lbs. 9 ozs.

Mr. Taintor's importations commenced in 1846. Mr. Allen has kindly furnished me with a list of those also made by other persons, but on second thought I have concluded not to give it. To do so without discrimination would be placing honorable persons in an unpleasant association, and I do not feel called upon, with-

* It has become so customary not to wash the best stock rams, and to treat them as above mentioned, that I am compelled to give their weight of fleeces under such circumstances.

† He was used as a sire ram at Rambouillet, and Mr. Collins was obliged to wait until he was thus used the year that he brought him out.

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out greater necessity, to specify individual frauds which have mostly worked their own cure.

Mr. Taintor, on the point of leaving home, referred me for particulars concerning his imported sheep, to a large proprietor of them, Mr. John D. Patterson, of Westfield, N. Y. That gentleman has furnished me the following statements:

"Your second inquiry calls for the characteristics of these imported sheep, weight of single year's fleeces, &c., &c. It would be difficult to give the characteristics of these various importations of sheep, as there has been so great a difference in them, they having been of all kinds and qualities, from *good* to *very inferior*. Some of them have been of large size, were well proportioned, being short in the leg, broad in the chest, had strong hardy constitutions, were easily kept, and always in good condition. With ordinary care and on ordinary feed, they sheared heavy fleeces, and their wool was even and of good quality, while others of them, and by far the greatest number, were the opposite of these in all the different qualities mentioned, some having been the discarded and refused sheep of good flocks, and others were grade sheep from flocks having no reputation as being of strictly pure blood; but these kinds of sheep were bought up by speculators at low prices, brought to this country and sold on the reputation and credit of the better class of French sheep that had been previously imported. They were long in the leg and long in the neck; were slab-sided, thin-visaged, gaunt, thin through the shoulders, narrow in the chest; their constitutions so puny and delicate that it was impossible to keep them in fair condition even with the best possible care and attention; their fleeces were light, their wool uneven in quality, some being quite too fine for profit (because too light), while others would be exceedingly coarse and filled with jar. In France, as in this country, there are all descriptions and grades of sheep, and it does not follow, as is supposed by many, that all that have been imported from there are of the same kind and quality, even if *called* by the same name. * * * * * *

"In answer to your inquiry as to the weight of fleece of the French sheep and their live weight, I can only reply by giving the result of my own flock. My French rams have generally sheared from 18 to 24 pounds of an even year's growth, and unwashed, but some of them, with high keeping and light use, have sheared more, and my yearling rams have generally sheared from 15 to 22 pounds each. My breeding and yearling ewes have never averaged as low as 15 pounds each, unwashed, taking the entire flock. Some of them have sheared over 20 pounds each, but these were exceptions, being large and in high condition.

The live weight of any animal of course depends very much upon its *condition*. My yearling ewes usually range from 90 to 130 pounds each, and the grown ewes from 130 to 170 pounds each, and I have had some that weighed over 200 pounds each; but these would be above the average size and in high flesh. My yearling rams usually weigh from 120 to 180 pounds each, and my grown rams from 180 to 250 pounds each—some of them have weighed over 300 pounds each, but these were unusually large and in high flesh and in full fleece. I have had ram lambs weigh 120 pounds at seven months old, but they were more thrifty, fleshy and larger than usual at that age.

"As you request the height from the top of the shoulder to the ground, I have measured some of those of medium height, and find that

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yearling ewes run from 26 to 28 inches, the grown ewes from 28 to 30 inches, the yearling rams from 28 to 32 inches, and the grown rams from 30 to 34 inches. You also inquire the *color* of the great body of French sheep, externally; what color the wool is when opened on the sheep, whether the oil in the wool is white or yellow, and if they exhibit much gum?

"When running out and exposed to the storms, they are, as a whole, light-colored when compared with the Spanish Merinos, for the reason that they have much less yolk or gum in their fleeces, besides their oil or yolk is more of a soap-like substance, and separates from their wool so readily that the rains will wash their surface comparatively clean, leaving them light-colored, while the oil or gum of the Spanish Merino is so adhesive and sticky it is difficult and, in many of them, impossible to wash it out of their wool by ordinary brook-washing; and as it is the yolk or oily matter contained in the fleece, causing the dust and other matter to adhere to it, which gives the external color, the Spanish Merinos are generally darker on the surface than the French, and it is this excess of oil in the Spanish Merino which causes their fleeces to lose so large a percentage in weight when *cleansed* for manufacturers' use. Experiments made with the two kinds of wool, by reliable and experienced manufacturers, have proved that as much cloth can be made of the same number of pounds of *unwashed* French Merino wool as can be made of an equal number of pounds of *brook-washed* Spanish Merino wool in the condition it is usually sold.

"In answer to your inquiry as to the color of the wool of the French sheep when opened on the back, and if their oil is white or yellow, I would say their wool is generally of a cream color, or has a yellowish cast, and the oil or yolk in their fleece is a similar color; still, when washed their wool is of a pure white.

The wool of some of the French sheep is naturally quite white when opened on the body, without being washed, but I have invariably found those having the *whitish* wool (when alike in other respects) were the lightest shearers."*

The following statement of E. L. Gage, of De Ruyter, N. Y., (made in behalf of his father and himself,) contains interesting details in respect to the management of these sheep, by persons whose skill and success in that particular have not been excelled:

"We bred French sheep from September, 1852, till February, 1861. Our first purchase was of John A. Taintor, of Hartford, Conn. We have since bought of John D. Patterson, of Westfield, Chautauqua Co., N. Y., and F. M. Rotch, Morris, Otsego Co., N. Y. About forty is the most we had at any one time.

"The average weight of the ewes' fleeces was 10 lbs 8 ozs., well washed.

"In addition to hay in winter, we fed them about a pint of a mixture of grain and roots each per day.

"We also fed a small amount of grain in summer to attract them to the barn at night for their safety from dogs.

"They were always kept housed in winter except on clear days, when they were allowed to go out or in at will. They were also allowed to go into the shed at will in summer.

* This letter is dated January 11, 1862.

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"The French Merinos always afforded us good returns in wool and lambs. The ewes were good nurses, often bearing twins. Our full grown rams weighed from 180 to 225 pounds; the ewes from 125 to 170 pounds.

"We sold our entire flock of French Merinos and crosses to J. D. Patterson, Esq., last winter.

"We have now commenced a flock of pure blood Spanish Merinos of the Atwood and Hammond stock, and have about fifty in all.

"With the experience we have in both breeds, it is our impression that the Spanish are the most profitable for all classes of wool growers, and will keep in better condition on short keep and rough usage; but it always paid us better to keep well than poorly. Part of our Spanish ewes sheared last spring 6 lbs. washed, and a part 8 lbs. 4 ozs. unwashed. I think by good breeding and care a few generations, we can increase the heft very much. I enclose two samples of wool from two of the ewes."*

I subsequently inquired of these gentlemen whether their French sheep were driven to the barns at night and in rain storms in summer, or if they went there without driving. Their reply was, that they sometimes drove them in during cold rain storms in the fall, but otherwise not; that, however, the sheep generally went under shelter at all times when wetted by rain; that in fair nights they "seemed to prefer sleeping out in the yards." The means used to guard them against dogs brought them also to sleep on the dry straw of the barn yard instead of the damp sod of the pasture.

Introduction of the Silesian Merino.

Still another Richmond was to appear in the field of competition—the exquisitely wooled Silesian Merino. The following account of its introduction and characteristics is contained in a letter to me from the principal importer of the variety, William Chamberlain, Esq., of Red Hook, New York. He writes:

"Your favor dated 24th ult. is received, and it gives me pleasure to furnish the required information in regard to my flock of Silesian sheep, with full liberty to make such use of the facts as you please.

"1st. I have made importations for myself and George Campbell of Silesian sheep, as follows:

In the year	1851, say	40	ewes and	15	bucks.
do	1853, do	27	do	4	do
do	1854, do	111	do	13	do
do	1856, do	34	do	2	do
		212	do	34	do

"In 1854 I visited Silesia and made the purchases myself.

* This letter is dated January 2, 1862.

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"2d. The sheep were bred by Louis Fischer, of Wirchenblatt, Silesia, except a few which were bred by his near neighbor, Baron Weidebach, who used Fischer's breeders.

"3d. Their origin is Spain. In 1811 Ferdinand Fischer, the father of Louis Fischer, the present owner of the flock, visited Spain himself and purchased one hundred of the best ewes he could find of the Infantado flocks, and four bucks from the Nigretti flock, and took them home with him to Silesia, and up to the present day they have not been crossed with any other flocks or blood, but they have been crossed within the families. The mode pursued is to number every sheep and give the same number to all her increase; an exact record is kept in books, and thus Mr. Fischer is enabled to give the pedigree of every sheep he owns, running back to 1811, which is positive proof of their entire purity of blood. The sheep are perhaps not as large as they would be if a little other blood were infused; but Mr. F. claims that entire purity of blood is indispensably necessary to insure uniformity of improvement when crossed on ordinary wool growers' flocks; and such is the general opinion of wool growers in Germany, Poland and Russia, which enables Mr. Fischer to sell at high prices as many bucks and ewes as he can spare, and as he and his father have enjoyed this reputation for so many years, I am fully of opinion that he is right. From these facts you will observe that my sheep are pure Spanish.

"4th. Medium aged ewes shear from 8 to 11 pounds; bucks from 12 to 16 pounds; but in regard to ewes, it must be borne in mind that they drop their lambs from November to February, which lightens the clip somewhat. I do not wash my sheep.

"5th. I have sold my clip from 30 to 45 cents, according to the market.

"6th. We have measured the wool on quite a number of sheep, and find it from one and a half to two inches long, say eight months' growth, but I have no means of knowing what it would be at twelve months' growth.

"7th. Their external color is dark. The wool has oil but no gum whatever, they having been bred so as to make them entirely free from gum—German manufacturers always insisting on large deductions in the price of wool where gum is found.

"8th. As above stated, the Silesians have oil, but no gum like what are sold for Spanish and French, and the oil is white and free; the wool does not stick together.

"9th. We have weighed five ewes. Three dropped their lambs last month; the other two have not yet come in. Their weights are 115, 140, 130, 115 and 127 pounds; three bucks weighing severally 145, 158, 155 pounds; one yearling buck weighing 130 pounds; but this would be more than an average weight of my flock when young and very old sheep were brought into the average. My sheep are only in fair condition, as I feed no grain. They have beets, which I consider very good for milk, but not so good for flesh as grain.

"10th and 11th. For the first time my shepherd has measured some sheep: ewes from 24 to 28 inches high, fore-leg 11 to 12 inches; bucks, 27 to 28 inches high, foreleg 12 to 13½ inches.

"12th. We find the Silesians hardy, much more so than a small flock of coarse mutton sheep that I keep and treat quite as well as I do the Silesians.

"13th. They are first rate breeders and nurses.

"Some of these facts I have given on the statement of my shepherd, Carl Hyne, who was one of Mr. Fischer's shepherds, and came home

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with the sheep I purchased in 1854, and a man whose honor and integrity I can fully indorse.

"My sheep do not deteriorate in this country, but the wool rather grows finer without any reduction in the weight of fleece."*

In a subsequent letter Mr. Chamberlain writes:

"Carl has weighed a few more of our Silesian sheep, and their weights are as follows: Four full aged ewes, respectively, 120, 125, 107, 107 pounds; two ewe lambs, 90, 87 pounds; two two-year old bucks, 124 122 pounds; one three-fourths blood, 143 pounds.

"I attended to the weighing and selection myself, and am of opinion that our ewes from three to eight years old average fully 115 pounds, say before dropping their lambs. Our younger sheep do not weigh as much. Silesians do not get their full size till four years of age, and after eight or nine years they are not as heavy. * * * Mr. Fischer's sheep are large, say larger than any flock of Vermont Merinos that I have seen. * * * I have the lambs come from November to March, because Carl says it is the best way, and I let him do as he pleases. * * * The ewes do not give quite as much wool, but I think the lambs make stronger sheep, as they get a good start the first summer."

Comparative Profitableness of Varieties.

Your President has assigned to me a delicate task under this head; but I shall advance upon it fearlessly, because I know that the opinions of one person, if erroneous, will weigh but little and soon be corrected.

With an experience with all the preceding national varieties, except the Prussian or Silesian Merino, quite sufficient to satisfy *myself* in regard to their respective qualities, I have preferred to go for testimony to others—to the principal importers and the most deeply interested owners and advocates of each variety—to those who, by common consent, have the choicest animals of each ever introduced into or bred in our country.

It is true this affords a view only of the best animals, but these are the ones which offer the most instructive examples, and there is no difficulty in judging from them downwards.

The American (Spanish) and Saxon varieties were first introduced in large numbers, and will therefore be first compared.

There was no time after 1835 when the prime American Merino did not exceed the prime Saxon Merino by at least one and a half pounds in the weight of fleece. The table of prices shows that before and subsequently to that period, the average price of Saxon wool was not more than 10 cents highest per pound.

* This letter is dated January 6, 1862. Mr. Chamberlain's residence is considerably nearer to Barrytown than to Red Hook.

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Between 1831 and 1837, when Saxon wool was most remunerative, its average prices were from about 65 to 70 cents per pound. If we estimate the Saxon fleece at three pounds, and the American fleece at four and a half pounds, when the first was worth in the market $2.10, the latter was worth $2.70.

The Saxon was a smaller consumer than its rival, because a smaller sheep. The production of flesh and other animal tissues from food, is a process regulated by physiological laws which work substantially alike where breed, habits and other circumstances are alike. The Merino consumes about one-thirtieth of its own weight daily of good hay in winter, and an equivalent of green food in summer. The Saxon sheep of 1840, then, consumed about two and a half pounds of hay daily, and the American about three pounds—a difference of 75 pounds in favor of the former during the 150 days of a New York winter. Hay then cost about $5 a ton at the barn, and pasturage a cent a week for a sheep of either variety through the remaining 225 days of the year, making the cost of keeping an American Merino less than 20 cents most a year.

The Saxon required much more care and attention and better winter shelter. In ordinary hands it reared 20 per centum less of good lambs.* Finally the American Merino fatted as easily as the Saxon, made as good mutton, and produced more of it.

In the interior and wool-growing regions proper of New York, hay for the last few years has usually averaged about $6 a ton in value at the barn, and pasture costs through the season about two cents a head per week for sheep. Were the prices of both doubled, it is obvious that the American Merino would continue vastly the most profitable sheep, particularly if the increase in its fleece since 1840 is taken into account.

The French Merino spread with great rapidity throughout the Northern States, and is disappearing as rapidly. Our farmers have obtained the impression that it produces less wool in proportion to size and consumption, than the American Merino, wool of less value, and that it is essentially a weaker and less hardy animal.

Many of the imported sheep of this variety, as well as their

* I say "good lambs," because many of the small and feeble lambs of the Saxon sheep perished during their first winter when eight or nine months old.

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descendants, did, undeniably, produce very light fleeces in proportion to carcass. I have seen them repeatedly beaten, fleece for fleece, by little compact American Merinos of scarcely half their size.

It is true also of the best of them that their fleeces are much lighter in proportion to mere bulk (that is when equal force is applied to compress the fleece in the wool press*), than those of the American variety. If both are unwashed, the American fleece has far most yolk. If washed equally well, the American fleece still retains far more of that substance. Yolk is mainly an animal soap, the constituents of which will presently be given, but it contains a trace of insoluble fatty matter. Whether from a greater proportion of the last, or for some other cause, the yolk of the American sheep is less readily liberated—it requires more previous soaking—and if the sheep are put *dry* into cold brook water, and not kept in over long—the fashionable mode of washing in our country—the French Merino's wool is nearly as free from this substance before it goes in, as that of *a class* of American Merinos is when they come out; and according to my observation, the yolk reappears twice as rapidly in the American fleece after washing. Indeed this must be true, for where there is double or treble secretion during the year, the process of secretion must go on with double or treble rapidity; consequently, if two or three weeks are allowed to intervene, as usual, between washing and shearing, and if the weather be warm, the American fleece again becomes lubricated and "weighted" with yolk, while the French fleece remains almost as dry as cotton.

In one respect, certainly the American fleece derives a purely legitimate advantage from these facts. With the rapid return of the yolk comes the rapid return of lustre and the characteristic silkiness of handling so much prized by buyers.

I am inclined to believe that wholly independently of all extraneous matter, the actual fibre of the American wool, if we could weigh exactly equal quantities of each, would be found heaviest. The bones, muscles, skin and other animal tissues of a small animal, even of the same species, are less porous and, to use the familiar term, finer-grained than those of animals fifty per cent. larger. Wool and hair closely assimilate in their organic con-

* See Appendix D.

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stituents with these substances.* I know no reason, therefore, why an analogous decrease of density should not extend to the wool and hair of the larger animal.

But without taking such refinements into the account, and to sum up the matter, the American far excels the French Merino in the combined production of wool *and yolk*; and as yolk is allowed to be a marketable commodity, the mass of our farmers prefer the sheep which produces it in greatest abundance. But in the production of pure *wool*, my own opinion is that the heaviest fleeced animals of the two varieties do not materially differ—not more perhaps than is inevitable, other things being equal—by reason of that law of matter which gives small spherical bodies more surface in proportion to weight and diameter than larger ones. The carcass of a sheep has sufficient sphericity to make this law applicable to it. A better idea of its practical effects will be obtained from an examination of the following table prepared in relation to round shot:

Diameter in inches.	Weight in pounds.	Surfaces in inches.	Inches of surface to one pound weight.
2	1,092	12.56636	11.50
3	3,685	28,27431	7.69
4	8,736	50.26544	5.75
5	17,063	78.53975	4.60
6	29,484	113.09724	3.83
7	46,820	153.93791	3.28
8	69,889	201.06176	2.87

It will be observed that while the disparity in proportionable surface, between the extremes given, is enormous, that it diminishes as between larger spheres. But notwithstanding this, all must see that between spheroidal bodies differing fifty per centum in size and weight (equivalent to the difference between the French and American Merino), the greater proportionable surface of the smaller body must be sufficient to make a material difference in its favor if that surface is to be covered with wool of equal thickness and length. To express the result more prac-

* Analyses made by Liebig, Johnston, Scherer, Playfair, Boeckman and Mulder, prove that the organic part of wool, hair, skin, nails, horns, feathers, lean meat, blood, etc., are very nearly the same. The organic part of wool, according to Johnston, consists of carbon 50.65; hydrogen, 7.03; nitrogen, 17.71; oxygen and sulphur, 24.61. The inorganic constituents are small. When burned it leaves but 2.0 per cent. of ash. (*See Liebig's Agricultural Chemistry, Appendix; and Johnston's Agricultural Chemistry, Lecture XVIII.*)

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tically, the American Merino has more square inches of surface, in proportion to its size, for wool to grow on, than has the larger French Merino. And the general deduction is, the smaller the sheep the larger the proportionable surface.

The popular impression, that American wool is finer and better than French wool, is, in my judgment, based on an unequal and unfair mode of comparison. The best American wool is unquestionably finer, evener, softer, more glossy and more "stylish" than any French wool brought into our country. I have not a doubt either that it is denser in its substance and stronger in proportion to its diameter. My prize ram which I offered to show against Mr. Collins' imported "Grandee,"* not only excelled, but, in sportsmen's phrase, distanced the latter in fineness, trueness and soundness of wool.† Granting frankly that the former was an animal of decidedly exceptional qualities, I feel authorized to say that Grandee would have passed for a coarsish-fleeced animal in any really *fine* full blood American Merino flock of that day. And I believe that no one pretends that the modern importations of French sheep exhibit any improvement on Mr. Collins' in respect to quality of wool.

But the really good sheep of the later French importations were selected in France for a specific object—for the purpose of attaining the greatest amount of wool of a fair medium grade of fineness. To make the comparison even, we must select American Merinos which have been bred and pampered for the same object—the production of the heaviest fleece. And it is

* This offer was made in 1844, extending to a ram and a pen of ewes (Mr. C. to name amount sweepstakes), in consequence of the offensive and purely unprovoked attacks made for months in succession on our American Merinos by an able public writer, who, at the same time, warmly championed the French sheep. Now that Mr. Collins is dead, I feel bound to say that I have no idea he countenanced those attacks. Indeed, I believe that he subsequently said as much to me. But engaged, perhaps, in his ocean-steamer plans, and in his very large business transactions, he probably gave but little attention to the subject. At the time I thought his suffering these attacks so long to appear without public or private disclaimer, authorized any owner of American Merinos to make the above challenge. He did not accept it, and the sheep sent to meet his were easily victorious over all other competitors at the State Fair.

† The diameter and trueness of their wool were tested with an admirable compound Chevalier microscope, by Ebenezer Emmons, M. D., one of the State Geologists, and that one having the agricultural survey of the State under his supervision. His skill and accuracy in such *quasi* scientific manipulations will be questioned by no well informed gentleman. See his original statements in American Quarterly Journal of Agriculture, 1845, and also in Sheep Husbandry in the South, p. 135, and a reply containing further explanations, in American Quarterly Journal of Agriculture, 1846, p. 290. The diameter of "Grandee's" wool was more than double that of "Premium's," while a single fibre of the former supported 34.6 grains, and "Premium's" wool broke with 57.1 grains.

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my opinion that in these classes the French wool is at least as good as the American.

The only really weak point of the best French Merino as a pure *wool* producing animal, is the want of that hardiness which adapts it to our changeable climate and to our systems of husbandry. In this particular it is to the American Merino what the great pampered Short-Horn of England is to the little, hardy, black cattle of the Scotch highlands—what the high-fed carriage horse, sixteen hands high, groomed and attended in a wainscoted stable, is to the Sheltie that feeds among the moors and mosses, and defies the tempests of the Orkneys. The French sheep has not only been highly kept and housed from storm and rain and dew for generations, but it has been bred away from the normal type of its race. The Dishley sheep of Mr. Bakewell are not a more artificial variety, and all highly artificial varieties become comparatively delicate in constitution.

The following frank and well considered opinions on this subject are from the pen of Col. F. M. Rotch, of Morris, Otsego Co., N. Y., who imported some of these sheep in conjunction with Mr. Taintor in 1851, and who, a few years since, had a most admirable flock of them. He writes me:

* * * * "France I visited two or three times with a view to importing Merinos, and sent out to Mr. Taintor quite a number of the French variety.

"The French Merinos of the first class are certainly superb sheep, but they vary there as they do here—a few flocks, say half a dozen, being very superior, and then comes a number of mediocre flocks where neither the care nor expense nor knowledge are bestowed, and where the sheep more closely resemble the old Spanish type. You ask me my opinion of the French, as suited to our *rough farming*. I don't think them at all fitted to it. Though a vigorous, good-constitutioned and hardy sheep, they are accustomed to too much care and watchfulness in their native land to be able to endure the rough-and-tumble style of much of our farming. The north side of a barn and the lee of a rail fence for animals that are housed every night in the year at home, is too sudden and great a change. With *proper* care they are able to endure even our vicissitudes of climate, and thrive and grow fat here as in France; but like all improved breeds of domestic animals, it is folly to expect them to do well without care or feeding. Any animal brought from a state of high cultivation and a mild temperature, to a colder climate and poorer soil, will deteriorate unless extra pains are taken to supply the loss of care and counteract the change of food. During the dozen years I kept French Merinos, I gave them much the same care they had in their own country, and found them to thrive and breed and weigh and shear as they did there, *almost*. The long winter and the necessity of feeding dry food so many months, told upon them *somewhat*. They are good breeders and nurses, often having twins and rearing them

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well. As a cross upon our usual type of Merino, I consider them very valuable, but quite unfit for the general use as a stock sheep* of our farmers *at present*. With a better husbandry and improved shepherding, they may one of these days take their place among us as a breed, but now their crosses are what we must look to. I have no data that I can lay my hand upon of weights of fleece or carcass, nor of measurements. I sold my whole flock some six years ago to J. D. Patterson, of Westfield, who has now no doubt the finest sheep of this breed in the country."†

It will be observed that there is a hint of the want of adaptation in these sheep to our climate and common systems of husbandry in all the preceding communications from the most noted breeders of them, except Mr. Patterson, and he would seem to make the same admission by implication in a letter which is to follow.‡ It may, therefore, be assumed to be a conceded and settled fact.

Another point seems equally clear, that the inferior sheep of the variety are not like inferior American Merinos, still hardy and still valuable, but almost utterly worthless. This is a disadvantage which always attends highly artificial varieties and families. What so weak, worthless and miserable as a bad family of Short-Horns or a bad family of Dishley sheep!

In giving my opinion of the comparative profitableness of the best French and the best American Merinos, I will adopt the language of the most noted public advocate of the former, Mr. A. B. Allen. He recently wrote to me:

"The hardy American Merino, properly selected, (mind that, *properly selected*,) is undoubtedly best for the ordinary sheep master, and most profitable as a wool producer."

This by no means, however, establishes the fact that the French Merino is without high value in our country. Col Rotch's remarks in favor of a cross between that and the American Merino have been noted. Mr. Patterson, in answer to an inquiry on that subject, writes to me:

"I have tried the cross between the French and Spanish [American] Merinos, and succeeded beyond my expectations. Indeed, as a wool-growing sheep in the hands of most farmers, and to be kept as sheep are generally kept throughout the country, I have never seen a stock which I thought as profitable, both for wool-grower and manufacturer.

* By stock sheep I mean the main body of a flock.

† This letter was dated January 13, 1862.

‡ Perhaps I should hardly use the word "admission," for Mr. E. L. Gage, of De Ruyter, informs me that Mr. Patterson makes no secret of such views. If he did not state them explicitly to me, it was because he was not questioned.

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* * * * I have bred them since 1848, and for the last ten years I have had more of this kind than all others, although I have always kept a flock of pure Spanish, and have always put French rams to my French ewes, making my cross by putting French rams to my Spanish ewes, not that I think that principle of breeding the best, but it costs much less money to do it. And while this cross with me has always been a very profitable wool-growing sheep, I can also say I have seen crosses from these long-legged, slab-sided, narrow-chested French rams as miserable and worthless as can be imagined."

My own experiments in this cross, candor requires me to say, have been less successful. Some of them were made with a ram bred by Col. Rotch and pure blood American Merino ewes; some were purchased of gentlemen who started with such ewes and bred them to first rate French rams obtained of Messrs. Tainter and Patterson; and some were got by pure American rams on high grade French and American ewes (averaging say fifteen-sixteenths or more French, and the remainder American Merino blood.) From this last cross I expected much. The ewes were compact and noble-looking animals. The produce was obviously better than the get of French rams on the same ewes, but after watching it for two years, I have recently come rather reluctantly to the conclusion that in this climate even these grades are not intrinsically as valuable as pure American Merinos.

But the Merino ram which got them, though apparently presenting the most admirable combination of points for such a cross,* has not proved himself a superior sire with other ewes; and I do not therefore regard this experiment as conclusive.

Some well-managed experiments of both these kinds have been tried by the Messrs. Baker, of Lafayette, and the Messrs. Clapp, of Pompey, New York. They bred towards the French until they obtained about fifteen-sixteenths of that blood, and now find the cross best the other way. One of the last of these crosses now appears to promise extremely well.†

While the breeder of pure blood American Merinos has no occasion, in my judgment, to change them by a cross with *any* other variety, I at the same time believe that the owner of the mixed French and American varieties has no occasion to despair of

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* He weighed about 140 lbs., was compact and symmetrical, and his fleece weighed 14 lbs. washed. He was a very dark, yolky sheep. He was bred in Vermont; and though undoubtedly full blood, probably did not spring from ancestors as good as himself, or in other words, he was an "accidental" animal.

† Particularly the get of a choice old ram known as the "Lucius Robinson" ram, one of the best sire rams ever got by the "Old Robinson" ram.

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obtaining, at least, a most excellent and valuable sub-variety, if his crosses are judiciously made. There is a "debateable land" between the mutton and wool-producing regions where these crossed sheep, or where the full blood French sheep *may* prove the most profitable variety. Even the latter demand no more feed or care than the high-bred mutton varieties; they are probably about as good nurses; and they will yield a large quantity of meat, and meat of a quality which always commands a ready sale in our markets. Their annual product of wool would be far more valuable than that of any mutton variety. Their want of early maturity, as I shall presently show, would be no objection to them in such situations.

In France, where both mutton and forage are worth twice as much as in our country, the French Merino holds its ground against the best long and middle-wooled sheep brought from England.

It has another valuable place to fill, namely: on farms where surplus capital keeps up high systems of husbandry, is lavish in erecting structures, and employs an abundance of labor. These establishments of the wealthy are constantly increasing in our country—especially in the vicinity of cities and villages. In such situations the stately French sheep ought to be and will be, if fairly tried, a favorite and a profitable animal.

It is a misfortune to us as a farming people, that growing up without the local traditions and prejudices so common in older nations, we have no dams and bulkheads to arrest the currents of fashion—and if a fashion becomes established by the acceptance of a majority, it must sweep from the centre to the circumference, embracing all places and persons. Are the agricultural interests of a majority necessarily those of the whole? Are the same cattle and crops equally adapted to all soils and climates and markets? Must every change in our agriculture assume the form of a *mania*, and sacrifice everything that does not jump with its humor? It is time for us to abandon such follies.

American and Silesian Merino.

Between the Silesian sheep and the preceding varieties, it does not appear to me to be necessary to institute any extended comparison. Like the American Merino, it is the Spanish sheep materially improved, but not, like the French and Saxon sheep, bred away widely from the characteristic features of the orignal race.

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It is simply an exquisitely high bred Spanish sheep, of pure and undoubted descent, bred for fifty years to a particular model, by two breeders, a father and son. Its fleece is decidedly superior in quality to that of any Merino, except the Saxon, ever brought into or bred in our country, The weight of that fleece has been stated by Mr. Chamberlain. Wherever it is most profitable to grow really *fine* wool, this variety ought to stand unrivaled. And I cannot entertain a doubt that there will always be sufficient demand in the United States for such wool, to make large flocks of these Silesian sheep profitable. If our broadcloth manufactures should revive, as it is to be hoped they will, it will add immensely to the call for this class of wool.

Where it is desirable to make crosses between Merinos and coarse breeds, or to add to the fineness and evenness of coarse families of Merinos, these sheep would seem well fitted to the object.

Since writing the above, I have examined Mr. Chamberlain's imported flock and their descendants, in his possession. My impressions of the admirable quality and uniformity of their fleeces is fully confirmed. Most of the lambs were dropped when I saw them (Feb. 10th,) and the ewes appear to be excellent nurses. Their carcasses are round, and of good shape. Some of them are taller in proportion to weight than I consider desirable—because the German breeders pay less attention to this point—but this tendency could be promptly changed without going out of the flock for rams. I know not why there is so prevalent an idea that they are small sheep. They are at least as large as the ordinary American Merino. They are entirely free from gum within the wool, but are exceedingly yolky and dark colored. They are housed in the winter and at night throughout the summer, to protect them from dogs and to preserve their dark color. They are managed with great skill by the shepherd, and under admirable arrangements, but are not pampered in respect to feed.

Crossing.

Crossing or intermixing different breeds, or different varieties of the same breed, has been dabbled in by everybody.

The French attempted the first, and proclaimed to the world that the produce of the fourth cross between the Merino and coarse sheep (breeding towards the Merino) was as good a wool-

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bearing sheep, and as valuable for *breeding purposes*, as the full blood Merino.*

Dr. Parry, of England, tried two or three crosses, and with the bustling officiousness and absurd assurance of a new beginner, filled the agricultural publications of England with statements that he had already surpassed the pure Merino wool in quality, and had actually injured the produce of his grade ewes (between Merino and Ryeland) in fineness, by "one dip" too much "with the Spaniard!" †

Dr. Browne, in his learned "TRICHOLOGIA MAMMALIUM," states that I advised the crossing of the South Down and Merino, and wishes to hear "from myself" why I did so, after I had condemned the cross between the Leicester and Merino as an "unqualified absurdity." Having never before answered this question publicly, I will do so now. I advised it as I would advise the Finlander in a season of famine to continue his practice of mixing pulverized wood or straw with meal, if he found it necessary "to fill out his stomach"; but I should not tell him that I thought the pulverized wood and meal constituted a mixture better than all meal, or as good, provided both were equally accessible. Where there is a deficiency of capital to stock wool growing farms with pure Merino sheep, or where the latter can not be obtained rapidly enough, it is better to cross coarse ewes with Merino rams, than to leave the land idle. In the progress of time the produce will become excellent and profitable sheep; but to suppose that the produce of the fourth or of the twentieth cross will equal pure and properly bred Merinos, is what no breeder of ripe experience in the premises ever dreamed of. Base blood runs out rapidly by arithmetical calculation; but practically it *stays in*, and is ever and anon cropping out, by exhibiting the old base characteristics, in a way that sets all "calculation"

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* Mr. Livingston says: "Having mentioned Dr. Parry's concurrence with the French agriculturists in the opinion that the breed is completely changed in the fourth generation, I should add," &c. (Essay, p. 133.) * * * "The French agriculturists say that however coarse the fleece of the parent ewe may have been, the progeny in the fourth generation will not show it." (Page 133.) * * * "It is now so well established as not even to admit of the smallest doubt, that a Merino in the fourth generation, from even the worst wooled ewes, is in every respect equal to the stock of the sire. *No difference is now made in Europe in the choice of a ram, whether he is a full blood or fifteen-sixteenths.*" (Page 131.)

If this last assertion were known to be true in respect to the breeding of the French Merino, it would solve some now very puzzling problems in regard to that variety.

† See his letter, published in papers of Bath Agricultural Society, Vol. X.

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at defiance. The observing Germans have a very good way of terming all, even the highest bred mongrels, simply "improved half-blood." They found that their original coarse sheep had 5,500 fibres of wool on a square inch; grades of the third or fourth Merino cross produced about 8,000; the twentieth cross 27,000; the perfect pure blood 40 to 48,000.*

Whether it is proper and expedient to cross between varieties of the same breed, in the expectation of forming an intermediate variety, *and improving on both of the originals*, is hardly yet a settled question. The Spaniards thought not, and carefully guarded against any mixtures between their cabanas; and they bred in-and-in for ages.

The French plunged into the opposite extreme, by selecting from and intermixing the blood of all the different cabanas indiscriminately—wherever a choice animal could be found. And, Mr. Gilbert to the contrary notwithstanding, they never have "melted into each other" by forming one closely homogeneous variety, or even a group of such varieties. They are of all sizes, sorts and descriptions. Col. Rotch's letter can be re-read with profit in this connection.

Mr. Jarvis did not carry this system so far—for he blended much fewer cabanas, and it was an aggregation of masses instead of mere individuals; but I have reason to suspect that even in this he did not follow his own better judgment, but was influenced by the inducements held out by leading manufacturers, who wished to obtain a wool resembling the Saxon.†

In his instance, the guidance of a single intelligent will, for upwards of half a century, produced a very considerable degree of uniformity in his flock; but will any one now undertake to say that the ultimate result of this long labor was an improvement on some of the separate original materials of his flock? Would

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* Fleichmann's Report.

† Charles Jarvis, Esq., of Weathersfield, Vermont, son of Hon. William Jarvis, writes me, (Jan. 14th, 1862:) "He also mentioned there was more gum in the fleeces [of the imported sheep] and they had a darker complexion at their introduction here than subsequently, mainly owing to father's *accommodating the manufacturers by breeding in the contrary direction.*" Here we have the solution of the Escurial cross; and now for the Saxon: "I have repeatedly heard him say his Merino ewes sheared about four pounds till he was persuaded by Mr. Shepherd [Col. James Shepherd, of Northampton, Mass.] the great manufacturer of that day, to get some Saxons to cross with, *as the finest wool was to be in the most demand in future*—and as repeatedly heard him end his allusion to the subject by declaring that if he had thrown his pocket-book, with the price of the Saxons, into the Connecticut river, as he was crossing for the purchase of them, he should be better off."

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any one now prefer his mixed sheep to descendants of the Paulars, Negrettis, etc., which he chose from the flocks of Spain?

Crossing, however, between two or three families, has sometimes resulted highly favorably. A considerable majority of the older breeding flocks of Vermont and New York are a cross between the Paular (Rich) and Infantado (Atwood) sheep. At the period that cross commenced, the first had size, form, constitution and long, thick wool. The last had fineness, evenness and style of wool, and an excess of yolk. Each was strong in the points where the other was most deficient; and experience soon demonstrated that the better qualities of both blended harmoniously in their offspring. There is no denying that the produce of the cross is far superior to either of the original families, as those families were when it commenced. They are great favorites with the farmers both of Vermont and New York, and are to be found in nearly every fine-wool growing county of the latter.

Mr. P. F. Myrtle and C. N. Ackerson, of Steuben county, New York, have a very superior flock, and Gen. O. F. Marshall, Julius Stickney, and others, of the same county, fine specimens of them, descended from the flocks of Tyler Stickney and Erastus and Lucius Robinson, of Vermont.* I have not at hand any statement of their average weight of fleeces, but they rank high in this particular. Messrs. Myrtle and Ackerson cut 13 lbs. of well washed wool from a ram lamb, the carcass of which weighed 60 lbs. after shearing. Gen Marshall cut 9 lbs. of well washed wool from a ewe about sixteen months old, which weighed 45 lbs.† It had previously, of necessity, received two heavy taggings. These sheep have obtained several first state premiums. They cross excellently with Merino flocks, previously in that county, owned by the Messrs. Baker and others; and indeed with all other Merino families with which I have known them to be intermixed.

The mixed Leonese (Jarvis) and Paular (Rich) families have been crossed successfully. "Fortune," one of the best early sire rams ever known in New England, was of this cross.* The ewes

* Mr. Stickney and the Messrs. Robinson started with Paular (Rich) ewes. In 1844, Hon. M. W. C. Wright, of Shoreham, Vt., purchased a ram, bred and brought to the New York State Fair, by Stephen Atwood. From this ram and one of his own ewes, Erastus Robinson bred the "Old Robinson Ram," whose descendants on Robinson and Stickney ewes constitute the crossed family mentioned in the text. Mr. Stickney had taken a previous cross with a very superior Jarvis ram. Whether his brother-in-law, Robinson, had done so I am not informed.

† For some valuable and interesting statements in regard to the proportion of wool to meat in sheep of different ages, sexes and sizes, see Appendix E.

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and ram with which I offered to meet Mr. Collins' imported French sheep in a sweepstakes, were the get of Fortune on Rich ewes.

The late John T. Rich, Esq., (son of the first Vermont proprietor of the Paulars, and father of the present proprietors of the old Rich flock,) took one cross with Mr. Jarvis' family, through a ram selected by a most competent judge,† who informs me that he was the only one of Mr. Jarvis' entire number which he considered suitable for that purpose. He was thicker-fleeced, darker and more compact of form than the others, evidently breeding back less than the others to the Escurial strain of blood, and his get corresponded with himself in this particular; but my impression is, that he did not benefit Mr. Rich's family. In a recent examination of that admirable flock, (now owned by John T. Rich, the younger, and Virtulan Rich, who live on the old homestead in Shoreham, Vermont,) I found no difficulty whatever in selecting out the nearest descendants of the Jarvis ram, and they struck me much less favorably than those displaying the characteristics of the original family. These valuable sheep have kept pace with the improvements of later times without any sacrifice of their early valuable qualities.

Hon. M. W. C. Wright, of Shoreham, Vermont, commenced breeding with Paular sheep, and crossed them with mixed Leonese, and subsequently with Infantado rams, thus uniting the three most distinguished families of American Merinos. His rams were scattered widely through New York a few years since, and they and their descendants have given much satisfaction to purchasers who wished to breed a high quality of wool. They have obtained many premiums at our fairs.

The Messrs. Cutting, of Shoreham, Vermont, have produced flocks of excellent character by a cross between Infantado sheep and an early family of Merinos from Newport, Rhode Island. They have bred steadily towards the former.

Henry Lane, Esq., of Cornwall, Vermont, has bred superior sheep of the Paular and Infantado cross, and also pure Infantado sheep improved by Mr. Hammond. The same remark applies to Loyal C. Remelee, of Shoreham.

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* He was got by a Jarvis ram on a Rich ewe, bred or owned by Mr. Stickney.

† Hon. M. W. C. Wright.

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On the other hand it has been signally demonstrated that crossing is much less necessary than has been usually supposed, either to avoid in-and-in breeding, or to obtain characteristics not usual to the variety. The pure Infantado (Atwood) sheep have in the space of eighteen years been completely changed in some of their most essential qualities. They have been converted into animals as large, low, broad, round, short-necked and symmetrical as any other family of Merinos in our country or the world. In short, some of them seem to me to have reached the perfection of form in a fine-wooled sheep. This change, quite as great as that which Mr. Bakewell produced in the Leicester sheep, is principally due to the skill and perseverance of Edwin Hammond, of Middlebury, Vermont. In 1861 he sheared 193 ewes and 7 rams. Forty-four of the first were yearlings, and smallish on account of the drouth of the season. Among the seven rams three were smallish yearlings and one a smallish two-year old. The whole 200 yielded an average of an ounce or two under 10 pounds of unwashed wool. Three grown rams yielded together 73 pounds unwashed wool. On account of the great scarcity of hay and the comparative abundance of oats, the sheep were wintered mostly on the latter.* This undoubtedly increased the weight of their fleeces, but the yield was still a most marvellous one. Mr. Hammond's wool is a shade coarser than it was when he commenced his wonderful improvements, but it is of a good quality, even, sound and less yolky than that of the original sheep.

Nelson A. Saxton, of Vergennes, Vermont, breeds a small and choice flock of the same blood, drawn from Mr. Hammond's flock.

Dr. Ira Spencer, of De Ruyter, New York, has made a vigorous commencement in improvements of Infantados drawn from Mr. Atwood's flock.† At the last shearing his flock consisted of 40 ewes three years old and upwards, 10 yearling and 2 grown rams and 8 wethers. The average weight of the whole fleeces, washed on the back, was a fraction over 7 pounds. He weighed and measured the height on shoulder of a few of these, on the 18th of January last, and subjoins the weight of their last year's fleeces.

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* The entire ewes of all ages received on the average a pound a piece daily.

† The ram, however, mentioned in following table (recently purchased) is of the Hammond family.

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	Live weight—pounds.	Height—inches.	Weight of fleece—pounds.
Ram	132	29	19½
Ewe	91	23	7
Ewe	87	23½	6½
Ewe	107	24 1/12	8
Ewe	89	24	7
Ewe	98	24 2/12	7

The ram's fleece was of eleven months growth and unwashed. The sheep ran between two and three weeks between washing and shearing. Their winter feed was hay, and each received daily half a pint of provender, made up of three parts by measure of oats and one part of oil-meal. The ram received more.

I have ewes of the same blood which have produced from 7 to 8 lbs. 4 ozs., of well washed wool per head; but I am unable to state any average, their fleeces not having been kept separate from those of my other sheep. The ram which I have given measurements of in Petri's table, is of this blood. He was bred by Mr. Hammond.

I am informed there are pure Paular sheep in some of the western counties of this State which produce very heavy fleeces, but I am unable to furnish any detailed facts on the subject.*

The result of my experience and investigations is embodied in the conclusion, that to attain very eminent success I would prefer to breed from a single family *having within it all the proper elements of improvement*, if it could be done without breeding in-and-in too closely. And some persons are quite too easily frightened on the latter subject. What can be made an evil by being carried too far, has, by much talking and writing on the subject, been made an indiscriminate bugbear at every stage of its progress. It is by no means true that it is either unsafe or improper to interbreed animals of any degree of relationship. If it is, what has saved the Spanish cabanas for ages? or to take a specific instance, (where there is no latitude for conjecturing impossibilities) what has kept up, nay, increased the size and vigor and

* I have by no means attempted to name all the choice pure blood flocks, either in this State or Vermont. This was not the object of this paper. In the former I have mentioned a few of which I happen to have *personal* knowledge. In Vermont I have only spoken of the flocks which (with the exception of Mr. Saxton's) I found time to examine during a three days' reconnoisance among the sheep of that State, made within a week of the time of reading this paper, for the purpose of enabling me to express opinions concerning the present qualities of the several varieties on the evidence of my own judgment.

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improved the form of Ferdinand and Louis Fischer's flock for fifty years, when that flock started with one hundred ewes of one family and four rams of another family, and these families have since been interbred without the admixture of a drop of fresh blood? Mr. Atwood's sheep present a still stronger example. According to his statements, his entire flock, now scattered by colonization into nearly all the States of the Union, originated from *one ewe*, and neither she nor any of her descendants in his hands was interbred with other sheep not descended exclusively from Col. Humphreys' flock. Mr. Hammond bought a small number of Mr. Atwood's flock in 1844, and he has since, he assures me, interbred solely between the descendants of those identical sheep.

Is it probable that the Creator, who organized all animals into either families, flocks or herds, which strongly incline to remain together, and implanted in none of them but man a disinclination to incest, at the same time established a physical law which rendered incestuous connexion *per se* an element of deterioration and final destruction? Among wild brutes, brothers and sisters must constantly pair together. Some kinds of birds are hatched in pairs as if for the express purpose of remaining together and interbreeding. And the connexion of brothers and sisters is the closest possible interbreeding. Has any one discovered or even conjectured a decay of the wild denizens of earth or air on this account? Does any one imagine that the elephant is smaller or weaker than he was when he trampled down armed squadrons on old barbaric battlefields, ages on ages ago, or that the African lion is a less formidable animal than when his angry roar shook the Roman Coliseum?

It may be said that inasmuch as the strong males destroy or banish from the herd the weak males, and that in times of scarcity and hardship the weaker animals of both sexes perish, a natural provision has been made to guard against deterioration, whether arising from in-and-in breeding or any other cause. In respect to animals which herd together in large numbers, and which are periodically exposed to severe vicissitudes of climate and periods of scarcity of food, this would be in a great measure true; but there are portions of the earth where some classes of animals, particularly those of lower organizations and solitary habits, cannot be supposed to be subject to such casualties, or to any which would have the effect of regularly weeding out those pos-

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sessed of less than the average of strength and hardiness. And I apprehend we shall find no natural laws necessary for the protection of animal life and vigor, enforced in respect to the higher and not the lower organizations, or which require a special and local set of circumstances to bring their benevolent effects into operation.

Interbreeding between near relatives becomes fatal to physical imperfection, but the drift of testimony goes to show that it is innocuous to perfection.*

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* A majority of the most celebrated breeders and improvers of English cattle have been close in-and-in breeders, such as Bakewell, the founder of the improved long-horn or New Leicester cattle, Price, "the most successful Hereford cattle breeder on record until twenty years ago," the Collings, Mason, Maynard, Wetherill, Sir Charles Knightly, Bates, the Booths, &c., &c., breeders of Short-Horns. In the first volume American Short-Horn Herd Book (edited by Lewis F. Allen, Esq.,) are diagrams showing the continuous and *close* in-and-in breeding which produced the bull Comet, by far the most superb and celebrated animal of his day, and which sold, at Charles Colling's sale, for the then unprecedented price of $5,000. His pedigree cannot be *stated* so as to make the extent of the in-and-in breeding, of which he was the result, fully apparent except to persons familiar with such things, and such persons probably need no information on the subject. But this much all will see the force of: the bull Bolingbroke and the cow Phenix, which were more closely related to each other than half brother and sister, were coupled and produced the bull Favorite. Favorite was then coupled with *his own dam* and produced the cow Young Phenix. He was then coupled *with his own daughter* (Young Phenix) and their produce was the world-famed Comet. One of the best breeding cows in Sir Charles Knightly's herd (Restless) was the result of still more continuous in-and-in breeding. I will state a part of the pedigree. The bull Favorite was put to his own daughter, and then to his own grand-daughter, and *so on to the produce of his produce in regular succession for six generations*. The cow which was the result of the sixth interbreeding, was then put to the bull Wellington, "deeply interbred on the side *of both sire and dam in the blood of Favorite*, and the produce was the cow Clarissa, an admirable animal and the mother of Restless. Mr. Bates, whose Short-Horns were never excelled (if equalled) in England, put sire to daughter and grand-daughter, son to dam and grand-dam, and brother to sister, indifferently, his rule being "always to put the best animals together, regardless of any affinity of blood," as A. B. Allen imforms me he distinctly declared to him, and indeed as his recorded practice in the Herd Book fully proves. It is true that his Duchess family became impotent—ceased to breed; and this has been seized on as a proof of the danger of in-and-in breeding. But Mr. Bates did not so regard it. He continued his previous course of in-and-in breeding with his other animals until his death, and with triumphant success. The editor the American Short-Horn Herd Book writes me: "As to Mr. Bates' cows being barren, that defect related to one family only, the Duchesses, which was constitutional in the first of them, and probably accidental." To the point of their ceasing to breed, they apparently grew more perfect in every particular. Mr. Price, whose Herefords were the best in England in his day, declared, in an article published in the British Farmers' Magazine, that he had not gone beyond his own herd for a bull or a cow for forty years.

It is not denied that Bakewell selected his original flock of long-wooled sheep from different flocks and families wherever he could obtain most perfection, but after that he bred in-and-in to the period of his death, and the Dishley sheep did not evince their subsequent feebleness of constitution when under his direction. The same statement will apply to Jonas Webb, the great breeder of South Downs. The Stud Book is full of examples of celebrated horses produced by close in-and-in breeding. Favorite varieties of the pig have been produced in the same way. There are families of rabbits, game fowls, pigeons, etc., which have been bred

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I do not recommend it *per se*, for who shall decide what perfection is? There comes a time generally when close in-and-in breeding between the *artificial species which have been partly moulded by man*, produces loss of vigor and degeneracy, and sometimes this fatal overthrow is but one step away from the pinnacle of apparent success.

But I would quite as sedulously abstain from running round from family to family and individual to individual to obtain a perpetual recurrence of disturbing and *unnecessary* crosses.

And when crossing is resorted to, let it be in a uniform way and direction. Let every breeder establish his own standard and breed steadily to it. The French did this. Mr. Jarvis did this. Both, therefore, succeeded in establishing a new variety, not as uniform as an old variety, yet far more so than if either had pursued a deviating and changeable course.

The sheep owner who changes the family and style of his rams every two or three years—now, for example, getting short, thick fleeced, and now long, open fleeced ones; now yolky and dark, and now dry and light-colored ones; now low, broad carcassed, and now tall, narrow ones, &c., &c.,—will never attain that degree of uniformity which is essential to a decently bred flock.

There is another kind of crossing between varieties of the *same breed* for a different object than the one I have discussed, viz., to *bring one of the varieties so crossed to the standard of the*

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in-and-in for a long course of generations without deterioration of constitution and with a constant improvement of the points regarded in such animals.

But the misfortune of it is, that while in-and-in breeding is the readiest road to uniformity and perfection in the thoroughly competent breeder's hands, it is the "edge tool" with which the incompetent one is sure to inflict swift destruction on his animals and his own interests. And there is another misfortune. Every man who owns animals fancies himself a competent breeder. He who has spent his life in other pursuits, reads a few books, picks up a few phrases, watches the proceedings of his shepherd a little, and then fancies he is a *breeder!* And he is not more mistaken in this supposition than is the unreading man, brought up on the farm, who has no knowledge on the subject outside of its traditions, and who, with the cant of "*experience*" ever on his tongue, never tried a carefully and properly conducted experiment in his life. No man can be a really able breeder who has not an abundance of theoretical knowledge, and an abundance of experience and long observation united. And even then I am inclined to think that, like the poet, he must be *born* to his business! Inasmuch then as it requires so much skill to detect those qualities and *tendencies* (some of them invisible and only to be ascertained by inferences drawn from numerous minor facts) which should prevent in-and-in breeding in one instance, or indicate its propriety in another, it is perhaps best that the time-honored public and traditionary belief on the subject should remain unshaken, viz., that interbreeding between animals of any degree of affinity is wrong and highly dangerous. As long as mankind started peopling the earth in this way, under the direct eye and provision of their Creator, it will hardly do to pronounce it *malum in se*, but let it be considered *malum prohibitum*, if the public pleases, in the strongest sense!

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other. In this no middle line between the varieties is aimed at, but to give the offspring the characteristics of the best one by crossing steadily towards the best one. I regard this as strictly legitimate breeding. For example, if a flock master has one hundred ewes of Mr. Jarvis' family, described under No. 1, and wishes to convert them into such sheep as those described under No. 2 or No. 3, it is his true course then to breed them steadily to rams of the preferred flock, and so far as possible to those of the same individual character. If the Merino blood is absolutely pure on both sides, the assimilation will usually go on pretty rapidly and surely. Many former owners of good Saxons even, who had judgment to select proper American Merino rams, and who have held on in a steady line, now own flocks superior in actual value to very many pure American Merino flocks.

I have alluded in a preceding note to the former admirable Saxon and Spanish flock of James M. Ellis, Esq., of Onondaga—called Saxon in the wool market, but built up on an early Spanish Merino foundation.* Fifty ewes were taken from this flock in 1852, the fleeces of which weighed from 3¼ to 3½ pounds. They and their descendants were bred steadily to heavy but fine fleeced American Merino rams. In the year 1860 the flock was 284, and yielded an average of five pounds of thoroughly washed wool, (with an excess of 11 pounds on the whole flock,) and such was its condition on the sorter's table, that it lost but 5½ pounds out of 1431 pounds, including strings and everything else rejected. It sorted as follows: No. 1, 71 lbs.; No. 2, 331 lbs.; No. 3, 493 lbs.; No. 4, 195 lbs.; fribs, 189 lbs.; No. 5, 102 lbs.; No. 6, 29 lbs.; No. 7, 12 lbs.; No. 8, 3½ lbs. The wool of this flock, from its beautiful quality, style and condition, has sold for 50 cents a pound for five years past—within half a cent of the average price of the best wool during that period in the Boston market. It thus gives on the average $2.50 net to the fleece. How many unpampered flocks of American Merinos will equal this? This is the fruit of a true cross. These sheep belong to James Geddes, Esq., of Fairmount, Onondaga Co., N. Y.†

In attempting thus to change the character of a flock, violent

* Gen. Ellis (father of James M. Ellis) purchased several sheep of Col. Humphreys, and kept a ram and ewe for his own use. Their blood mingles in that of the present flock.

† There are other excellent flocks of a similar cross, and a number of excellent American Merino flocks in the same county, but I am in possession of no definite statistics in relation to them.

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crosses are to be avoided so far as materials will allow. First, the inferior variety should approach the characteristics of the superior as far as practicable; second, even the superior variety should avoid the greatest extremes in certain particulars, and unquestionably so in size. In breeding up a Saxon flock to the American Merino standard, that cross should not be commenced with an overgrown ram of the latter. How far this rule applies in respect to the qualities of the fleece, &c., there is a difference of opinion. The Germans are disposed to avoid too great disparities in all particulars.

Selection of Flocks.

Carcass. In a climate like ours, and under a general system of sheep husbandry like ours, carcass is unquestionably the first point to be regarded even in the fine wooled sheep—because on the proper constitution, or the proper structure and connection of its parts, depends the health, vigor and hardiness of the animal; and without these, all other qualities are houses built on sand. Plump medium size, for the breed or variety, is the most desirable one. The body should be round and deep, not over long, and both the head and neck short and thick. The back should be straight and broad; the bosom and buttock full; the legs decidedly short, well apart, straight and strong, with heavy forearm and fullness in the twist. This "pony-built" figure, as farmers term it, indicates hardiness, easiness of keep, and a predisposition to take on flesh.

Skin. The skin should be of a rich, deep, rosy color. The Spaniards ever justly regarded this a point of much importance, as indicative of the fattening or easy-keeping properties of the animal, and of a normal and healthy condition of the system. The skin should be thinnish, mellow, elastic, and particularly loose on the carcass. A white skin, when the animal is in health, or a tawny one, is rarely found on a high bred Merino. A thick, stiff, inelastic skin, like that found on many badly bred French sheep, is highly objectionable.

Folds. The Spanish, French and German breeders approved of folds in the skin, considering them indications of a heavy fleece. The French have bred them over the entire bodies of many of their sheep. I have seen two hours and a half expended by an active and skilful shearer, in my barn, in getting the fleece decently off a ram of this stamp. This might do better in a differ-

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ent climate, and in countries where labor costs nothing; but the additional quantity of wool will not pay for it in this.* Besides, it is unsightly, because excessively unnatural. A deep, soft, plaited dewlap on both sexes, and some slight corrugation on the neck of the ram, were all our older breeders of the Merino desired in this way. The fashion has extended to heavy neck folds, particularly on the ram, a short fold or two back of the elbow, and some small ones round and on the roots of the tail and on the breech—the latter running in the direction of lines drawn from the tail to the stifle. Gentle corrugations over the body, which can be pulled smooth in shearing, are also tolerated.

Fleece. Wool long enough to do up in the fleece is not desirable on the nose under the eyes,† or on the legs below the knees and hocks, though a thick coat of shortish wool on the latter, and particularly on the hind legs, is regarded as a good point. The arm pits and most of the base of the scrotum must necessarily be

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* I mean additional quantity *caused* by the folds of the skin, for as a mere "*sign*" of a thick fleece they amount to nothing. The cost of additional labor is not the sole consideration. It is frequently a difficult thing to find time to shear a large flock of sheep between the rain storms from 15th of June to 10th of July. The farmer is often compelled to house his flocks for twenty-four hours in succession, to keep them dry for the shearers; and besides getting miserably dirty with green dung, they become so hollow and lank, (for they will scarcely touch dry hay,) and their skins so flabby, that it almost doubles the difficulty of shearing them. And this is *very* injurious treatment to ewes having young lambs. Prime shearers are scarce. What then would he do, who had 300 or 500 such sheep as I have named in the text, to get sheared! Suppose he obtained five or even ten pounds more wool from 100 sheep, would it not be vastly more economical to go to the expense of keeping one or two additional sheep to obtain it? There is no sensible point of view in which this excessive folding or wrinkling of the skin over the whole body is not an unmitigated *nuisance!*

† Long wool on the nose under the eyes is, like the preceding, *a nuisance*, on account of the obstruction which it offers to the sight. I have several sheep which would become totally blind at least twice a year, by the wool closing over their eyes, if it was not cut away. And long before it thus closes over, the sheep can only see laterally, so that they can be closely approached in front or rear, by man or dog walking noiselessly on the grass, or amidst the other noises of the barn yard. When they at last discover the approaching body so near them, they bound away in an agony of fright even from their familiar keeper. This obstruction of the sight is therefore very destructive to the quietness and docility which should characterize a well managed flock. And such sheep do not do as well in the winter, unless the wool is repeatedly clipped from around their eyes, because their companions are constantly taking advantage of them at rack and trough. Let us have no such "fancy" monstrosities as this and the preceding inflicted on our *valuable* American flocks. But a good foretop is justly regarded as a fine point. It should be of good length, dense, and the wool stand at right angles to the forehead. In should descend in a curve on the nose a little below the line of the eyes, circle round the eyes at just sufficient distance not to obstruct the sight, and join the wool on the cheeks and upper part of the neck, without break or opening.

I have omitted speaking of the ears. They should be small, coated with thick, soft, mossy hair, about half way to the roots, so as to give them a feeling of thickness and softness; and the remainder of the outer surface should be covered with wool. A thin, hard, and especially a naked ear, is highly objectionable.

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bare; but these cavities should be as small as the freedom of movement permits; and all the other parts of the body and limbs should be densely covered with wool of as uniform length as is attainable. It is a specially fine characteristic to see it of full length on the belly, forehead, cheeks, and on the legs as far down as the knees and hocks.

The wool should stand at right angles to the surface, except on the inside of the legs and on the scrotum; it should present a dense, smooth, even surface externally, dropping apart nowhere; and the masses of wool between those natural cracks or divisions which are always seen on the surface, should be of medium diameter. If they are too small, they indicate a fineness of fleece which is incompatible with its proper weight; if too large, they indicate coarse, harsh wool.*

The good properties of wool are too well understood to require many words. *Length* is no longer an objection to the finest staple, as it once was.† The maximum, both of thickness and length, cannot be attained on the same animal, and the object of the breeder should be to produce that particular combination or co-existence of these properties which will give the heaviest fleece.

Fineness. The grower knows his market, and must produce an article adapted to it. In the American market there is a much larger demand for medium than fine wools, and the former commands much the best price in proportion to cost of production. It is to be hoped, however, that the demand for fine wools will increase. Whatever the quality aimed at, it should be the same throughout the flock so far as it is practicable.

Evenness. Evenness of quality in every part of the fleece, so far as this can be attained, is one of the first points of a well bred sheep. Jar is very objectionable, but not as much so as what the Germans term dog's-hair—hair growing out through the wool on the thighs, the edges of the neck folds, about the roots of the

* Mr. Fleischmann gives the German standard of their diameter at one-sixteenth of an inch. I should say one-quarter of an inch was quite small enough for the American Merino. Viewed very closely, these masses are not, in many high bred American Merinos, strictly flat on the surface, but slightly butroidal, each tuft composing it having a rounded end. Pointed ends, particularly if their extremities are curled or twisted, and have a hairy appearance, indicate thinness and unevenness of fleece.

† The long fine wools, say two inches and over, are now manufactured into delaines, &c.; and as already said, broadcloths are not made in our country.

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horn in rams,* or standing scattered here and there through the fleece or inside the legs. This indicates bad blood or a defective course of breeding.

Trueness and Soundness. Wool should be of equal diameter from the root to the point of the fibre. It should especially be free from any finer and weaker spot or "joint" in it, occasioned by a temporary illness or other low state of the animal. This can often be detected by the naked eye, and always by pulling the fibre. Wool is said to be sound, when it is strong and elastic.

Pliancy and Softness are considerations of the first importance, not only as indicia of other qualities, but intrinsically. If we can suppose two lots of wool exactly to resemble each other in every other particular, but that under the same treatment one is comparatively stiff and hard to the touch, while the other has a silky pliancy and softness, the latter is decidedly the most valuable, because it will produce manufactured articles far superior in beauty and for actual use. But in point of fact, full blood wool is almost invariably soft in proportion to its fineness, and is always so in proportion to its marketable value. A practiced buyer can decide on that value in the dark.

Style is, perhaps, a word which has rather vague boundaries to its meaning; but it includes that combination of useful and showy properties which give value to the choicest wool, viz: fineness, clearness of color, lustre, uniformity and beauty of curving, and that peculiar mode of opening on the body, or disposition of the fibres in the sheared fleece, which indicate the last extreme of pliancy and softness. These qualities, in combination, present an appearance which at once, without a sufficiently close inspection to discover the separate fibres, or even without a touch of the hand, point out the best fleece in the pile.

Yolk. This, in its most usual form, is a semi-fluid, unctuous secretion from the skin, found in the wool of various breeds of sheep, and particularly in that of the Merino. Sometimes there is only enough of it to lubricate and make a shining coating on every fibre. In others, it appears additionally in little brilliant globules among the fibres. In others still, it forms a separate, visible and abundant mass in the lower part of the wool. In some instances it is as thin as the most delicate oil; in others,

* When the back of a ram's head has been severely bruised in fighting, hair sometimes succeeds to the original wool, and offers no proof of bad breeding.

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pasty and viscid; in others it has the spissitude of soft wax, and appears in particles or even in concretions of considerable size within the wool;* and when it is sufficiently abundant in the fluid form to ooze constantly to the outer extremity, it catches and retains dust, the pollen of hay, &c., and gradually inspissates into that black gummy mass now so eagerly sought for by a class of Merino breeders.

Vauquelin, a celebrated French chemist, found that various specimens of yolk contained about the same constituents: 1. A soapy matter with a basis of potash, which formed a greater part of it. 2. A small quantity of carbonate of potash. 3. A perceptible quantity of acetate of potash. 4. Lime, whose state of combination he was unacquainted with. 5. An atom of muriate of potash. 6. An animal oil, to which he attributed the peculiar odor of yolk. He found the yolk of French and Spanish Merinos essentially the same.

This substance is, then, substantially a soap—and the usual terms of grease, oil, etc., are not correctly applied to it. It washes freely from the hands, except that an unctuous feeling is left by the trace of fatty matter in it. The hands of shearers, kept covered with it for a number of days, grow perceptibly softer and whiter at every washing.

With a few hours previous soaking, it will wash almost entirely out of wool in soft, warmish brook water, except, perhaps, the external black gum. Let sheep be exposed to a warm rain long enough to *wet through* the wool, and let them then be thoroughly washed the next day in soft water falling in a swift, heavy current over a mill-dam, or from an aqueduct, and the owner will find (perhaps to his consternation) that even his black gum has disappeared, unless, perhaps, on old rams and a few incorrigibly dirty and "gummy" ewes. Yolk of any form that will remain in visible masses in the wool after such a washing, is improperly there; and he who cultivates it pursues an illegitimate line of breeding. Few or none of our farmers wash their sheep thus, on the ground that buyers will make no adequate compensation for the cleaner and lighter condition of the wool.

In the hard water of the limestone regions, wool washes much less cleanly. And I am informed by experienced wool buyers

* In the fleece of the first imported French Merino I ever opened—not apparently a very yolky one, and quite light colored externally—I found some of these concretions as large as an ordinary bean flattened.

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that much more yolk appears in the same wool and sheep, in some regions than in others. Ohio and Michigan fine wools are said to be ten per cent. freer from yolk than New York wools, and New York ten per cent. freer than Vermont wools.* I know by my own experience that sheep driven from the wheat soils of Onondaga county become lighter colored in Cortland county. Taken back, the same sheep again resume their dark color.

There are some incidental and easily explainable reasons for a part of this. On wheat lands, sheep are put on stubbles and become dirtier. The heaviest fleeced flocks of Vermont, from which high-priced breeding sheep are sold, are sheltered in summer as well as winter from rain, and thus all their natural yolk is retained.

There is another explanation of the difference in this particular between Ohio, New York and Vermont wools. This is in the breed of the sheep. Ohio has a smaller proportion of the heavy fleeced yolky Merinos than New York,† and New York a less proportion (though a larger number in the aggregate) than Vermont.

The uses of yolk have been stated by all writers to render the wool pliant and to promote its growth. The structure of wool, discovered by modern investigation, suggests other uses. Wool is covered with sharp projections, running in a uniform direction

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* I am not sure that this remark applies to all parts of Ohio.

† According to the census of 1850, the average weight of fleeces in Ohio fell not greatly below that of New York; but that, I take it, was owing to the fact that the common, low grade, dry-wooled farmer's sheep of Ohio are larger and heavier fleeced animals than those of New York. If limestone land and water, feeding on stubbles, etc., either increases the yolk (which is very doubtful) or increases the amount of dirt caught and retained by the yolk, and if limestone water *fails to remove* these as thoroughly as soft water, (both of which are undoubtedly facts,) then much of the grain growing portions of both Ohio and New York should produce heavier washed or unwashed fleeces than New England, or than the southern tier counties of New York; and so I have no doubt they would, if all other circumstances were made strictly equal. On the best wheat lands of New York, sheep do not require to be fed on stubbles to get dirty. Those lands are generally seeded down with red clover, which does not, under any circumstances, form so close a sod as the timothy, June grass, white clover, etc. of the grazing regions, and particularly not where it is broken up every two or three years in the usual way for grain. It is rare to see a clover pasture in the grain regions closely fed down, where the ground is not in every direction visible between the stools of clover; and the sharp hoofs of the sheep loosen the dirt in summer, so that in one way or another it soils the surface of the wool. In the *old* pastures of many portions of New England and our own southern counties, it would be difficult to see the ground on one hundred acres. Unless the sheep have it blown on them from the roads or plowed fields, by the winds, they scarcely come in contact with a particle of dirt during the summer. These facts explain the differences in the color of the sheep in the two regions. The violent and pouring rains of the Southern states prevent a great accumulation of either yolk or dirt, so that all Merino sheep from the North grow lighter colored there, and climate *may* add to the effect.

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from the root towards the outer end. They may be compared to the projections on the beards of wheat or barley, only they are so fine that it requires a powerful microscope to observe them. Mr. Youatt, the discoverer of them, found 2,560 in the space of an inch on fine Merino wool, 2,720 on an inch of Saxon wool, and that their number increased in proportion to the fineness of the fibre. These inconceivably minute points occasion the felting of wool. Remove them by heated combs, as is done in the manufacture of worsteds, and wool will not felt more than hair.

Every motion of the sheep causes the portions of the fleece between the surface cracks to slide on each other. Those cracks are the joints of the fleece. If these masses were utterly dry, instead of being lubricated with yolk, the continual friction of their sides would cause injurious abrasion. The sharp processes which cause felting would be rubbed off from a portion of the wool, and that property of the wool proportionably damaged. Again: if the wool were dry, heavy rains, rubbing together and other circumstances, would unquestionably cause felting on the carcass, and in the case of very fine wooled sheep, to a destructive extent. I have never seen either of these uses of yolk suggested before; but am I mistaken in supposing that the facts are too obvious to admit of question?

To what extent yolk should be propagated in wool, is a matter of some doubt. If the manufacturer will pay the same price for it he pays for the wool, it is certainly profitable to add as much of it to the fleece as is consistent with the greatest product of wool. But I think it admits of no dispute that the excessive amount sometimes seen—giving to the long fleece, under a hot autumn or spring sun, the appearance of having been literally soaked in some oily fluid, is not often the accompaniment of a specially thick fleece, or of one which gives the best account of itself after scouring.* The heaviest fleeced flocks of our country do not present this appearance. Perhaps such an excess of secretion in one direction withdraws it from other and concurrent channels. This suspicion is certainly reasonable, if yolk, as has been believed among both the learned and unlearned, constitutes a portion of the pabulum of wool.

Few persons, perhaps, understand how great a quantity of yolk

* The idea advanced by most of our early writers on Merinos, that the more the yolk the finer the fleece, is now utterly exploded.

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is really found in some fleeces. Chester Moses, an intelligent woolen manufacturer of Marcellus, New York, writes me that in 1861 he cleansed a ram's fleece which weighed in the yolk 19½ lbs., and "found 4 lbs. of wool." The owner had paid a large price for the animal. Mr. Moses has reported to me, in conversation, a number of other equally strong cases, but as he asks in his letter to be "spared from saying more," I do not feel at liberty to cite them.

All Merino rams' fleeces waste much more in cleansing than ewes' fleeces, but will any one undertake to say that it is good legitimate breeding to grow rams even whose natural fleeces will shrink nearly four-fifths in washing! Breeding such sheep may lead to one excellent result. When it has become sufficiently general it will *drive* manufacturers to make juster discriminations than they now do between moderately yolky and excessively yolky wools, but the moment that desirable object is attained, the sheep which produced the change must go out of fashion.

These *wet* looking sheep do not bear excessive cold as well as those having only a reasonable amount of yolk. Every flock master has found that they soonest "curl up" and shiver in the biting gale. Soap is not as warm as wool, and the congellation of this soap towards the outer extremity of the wool leaves open these surface cracks so as to let in wind and cold more than they are let in through drier fleeces.

I have already given a criterion for deciding what kinds or qualities of yolk should certainly be regarded as improper. Our best breeders, however, go further and decidedly object to much internal "gum," whether it will wash out or not. They think the wool should open freely on the back and sides of the animal and without sticking together, except at the end, at any period of the year. They desire a liberal quantity of yolk in its most fluid form, and of consequence cannot object to a moderate degree of external "gum;" but neither the excessively wet looking sheep I have mentioned, nor those which look as if they had a thick, continuous coating of tar and lamp-black extending three-sixteenths of an inch into the wool, are in favor among the best breeders.

Vauquelin assumed that the yolk left in sheared wool begins to injure it after a few months if not scoured out. I find by inquiry that the same opinion prevails among our manufacturers. The

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best brook-washed Merino wool, exposed to the air after shearing, gradually loses its lustre and softness and turns yellowish. For a time it acquires a waxy feeling, but gradually becomes dry and harsh.

Formerly, like many other breeders, I attached considerable importance to the color of yolk, believing that it must be white, or rather colorless, so the wool would open a pure white; but Mr. T. S. Faxton, of Utica, N. Y., Mr. James Roy, of West Troy, N. Y., and Mr. A. W. Hunter, of Schenectady, N. Y., all practical woolen manufacturers, to whom I addressed special inquiries on the subject, assured me that the color of the yolk is of no consequence to the manufacturer; and they also say that its quantity and consistency are only important so far as they cause loss in scouring. Mr. Faxton, however, excepts black "gum" on the outer end, which he says he clips off. He manufactures fine cassimeres.

Mr. Roy puts the cost of removing the yolk at "not over a quarter of a cent per pound," and the shrinkage in scouring of "fine fleeces, fairly washed before shearing," from 35 to 50 per cent.; "Merino flocks seldom under 45 to 50 per cent." He thinks "it makes no difference to the farmer what appearance the oil [yolk] exhibits."

Mr. Hunter puts the cost of cleansing at one-half to one cent a pound; says he "always obtains the strongest staple from healthy, well-fed and consequently oily [yolky] sheep, and the tender, poorly grown wool from ill-conditioned and lean sheep;" and he sets down the shrinkage in scouring (brook-washed wools he undoubtedly means) at 25 to 50 per cent., and "even a higher percentage of loss on rams' and fat wethers' fleeces."

Mr. L. Pomroy & Sons, woolen manufacturers of Pittsfield, Mass., write that "the yolk has more tendency to grow the wool together, and cannot be scoured out to take even colors, particularly an indigo blue." The word yolk is undoubtedly here used (as some writers have used it) to signify that bright saffron-colored substance which appears on wool, which is technically termed "yellowed," and which is accompanied with more or less felting on the back, or "cotting," as farmers term it. In "cotted" fleeces the felting sometimes extends but a little distance from the skin, sometimes far enough to prove very injurious.

I find the color of the yolk in the original Spanish sheep alluded to but by very few writers. But Lord Somerville, who

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visited Spain in 1802 for the purpose of examining its Merinos and bringing home a flock, and who is generally a very accurate writer, makes the following statement in his Essay on Sheep: "By yolk is meant that *yellow* substance which escapes from the skin and is to be found in the wool of every Merino sheep when in health and good condition." And the very name of yolk for this substance, which I believe came from Spain, would, if I have not mistaken its derivation, imply the same fact. I take it for granted that it obtained that name from its resemblance in color and consistency to the yolk of an egg.

I have pursued this question of color thus far because the establishment of an imaginary criterion of excellence is always very unfortunate to the breeder. It not only directs his time and efforts towards an object of no importance, but inasmuch as the attainment of any real or fancied excellence is generally accompanied by some sacrifice in other quarters, it causes him, so far as that sacrifice extends, to exchange substance for shadow. I have seen a purchaser reject the obviously better animal because its yolk was yellow, while that of the selected one was white or colorless.

Housing Sheep to Preserve Yolk in the Wool. Early Shearing. Pampering.

As already remarked, the flocks of Merinos in Vermont and a few in New York from which high-priced breeding sheep are sold, are sheltered not only from the storms of winter, but from the rains of summer; and even in the pleasantest weather many of the flocks do not lie out of doors nights more than about two and a half months in the year.

This is done to retain all the natural yolk in the wool. Rain and even dew to some degree dissolve and rinse it out. The object of retaining it is to preserve that dark coating which is so much sought after, and because it forms an important auxiliary in the weight of those monster unwashed fleeces which is to be proclaimed to the world.*

* A class of sellers attain the first object, and to some extent the second, by a shorter and cheaper process. They color their sheep with a preparation of burnt umber and oil, which forms a coating so closely resembling that of a highly yolky housed sheep, that it requires considerable experience to detect the difference. This is termed in Vermont "the Cornwall finish." No Vermont breeder of character thus colors his sheep, but many of the "Merinos" driven from that State and hawked through the Middle and Western States for the last twenty years, have been thus colored.

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The sheep which are to be sold are usually sheared about the first of May, and some of them earlier.

If a number of sheep were selected from the same flock so closely resembling each other that if divided into two parcels one could scarcely choose between them, and then if one of these parcels were treated as above described, and the other in the ordinary way—that is to say, if the latter were wholly unhoused except in the winter, and not sheared until near the first of July, no inexperienced person who should examine the two parcels in the ensuing fall or winter could be made to believe they were sheep of the same quality. Explain to him fully the difference in their treatment, and still the effect produced upon his eyes would so far control his judgment that he would pay twice as much for the housed and early sheared sheep.

The leading breeders of Vermont are guilty of no deception in these particulars, for they frankly avow their treatment and their motives for it. And they might ask if it is not as legitimate to put a sheep as a horse or any other piece of property in its best form for sale.

But it is undeniable that the practices named lead to many disappointments. The buyer never finds his sheep looking so dark-colored again, and he is astonished sometimes to find that after he has sheared them once these supposed prodigies are no "woolier" than sheep he owned before. Besides, the sheep which has been carefully housed from storms all its life does not always do so well when exposed to them.

It costs no trifling sum to house sheep in the summer. On a large establishment and with flocks scattered in distant fields, the expense and trouble would be highly onerous. The early shearing, too, causes much additional labor in protecting the sheep from the cold spring weather. It is not seriously claimed that either of these practices benefit the sheep* or add to their product of cleansed wool. If all flock masters were to adopt them they would not even help the interests of the seller.

Without wishing to attach any censure to such honorable per-

* In some places housing is necessary against dogs; but in that case they should be housed *all* the year.

Some claim that the early sheared sheep winter better; but five months' growth of wool before December ought to be quite sufficient for the protection of heavy fleeced and winter-housed sheep. Others claim that early sheared sheep "coat over" better (grow darker colored with yolk); and this is probably true. At all events they become dark colored earlier in the season.

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sons who now employ these modes of fitting their sheep for sale, *as avow them to all persons wishing to purchase, whether questioned on the subject or not*, I may be permitted to express the hope that such a purely unnecessary waste of labor and capital may not become customary throughout the thoroughbred flocks of our country.

I should not satisfy my convictions of duty if I did not utter my earnest protest in this connection against another practice introduced and to some extent keeping pace with the preceding ones—that of over-feeding sheep not intended for slaughter. A portion of those people who shelter their flocks in the summer and autumn, commence giving them grain at the same time, and the only limits to their feeding in winter are the appetite of the animal and the necessary care for its immediate safety. Very high condition not only adds to the size, roundness, apparent compactness and "nearness to the ground" of the carcass, but quite as materially to the growth of wool and the secretion of yolk. Between a ram allowed to run with ewes, unsheltered except in winter, and in all respects treated in the ordinary way, and the same ram used to ewes singly, sheltered from rain and dew, and constantly fed to the verge of safety, the difference in the weight of even the washed fleece will not fall short of about 20 per centum; but if the fleece is weighed in the yolk, as is the custom among owners of *show* sheep, the difference will often reach 33⅓ per centum.

What is the object of this pampering? Under any circumstances, and especially in connection with early shearing and summer sheltering, it fits sheep entirely to outshow and excel in the product of wool far better unpampered ones; and these considerations influence buyers just in proportion to their inexperience and ignorance of "the tricks of the trade." No sensible man will seriously pretend that, taking one year with another, the actual increase of wool by such means will pay for the employment of those means. Every experienced flock-master knows that it destroys the hardiness of the animal. Most of these pampered sheep go down at once, or gradually fail in vigor, and at length succumb to the slightest casualty, if put back on common feed and subjected to the ordinary treatment. And even if the forcing system is continued, the constitution eventually becomes so effete that it requires extra care and skill to guard against

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accidents. The slightest one produces fatal consequences. It is next to impossible to combat any disorder successfully in a long-pampered sheep, or raise it up again if it becomes poor or debilitated. The vital energies appear to be all exhausted.

How often has a zealous beginner paid an extraordinary price for animals (whether Merinos, South Downs, Long-wools of this or that designation, Short-Horn cattle, &c.) to find that with his utmost pains he cannot keep up either their appearance or their productiveness? His Merino sheep produce a third less wool. The word of promise was kept to the ear but broken to the hope. He was told with *verbal* truthfulness that they had yielded this or that enormous amount of wool and yolk in a year, but he was not told that it was in part produced by an unnatural and destructive system of *forcing;* that he was buying a spent hot-bed, capable under no circumstances of another such yield, and soon to become worthless.

If the sheep breeder *has* as good a right as the horse breeder to "fit his animals for sale," it would be an insult to common morality and common decency to claim that either of them has the right purposely and materially to impair the constitution and value of his animals, to obtain a readier sale and a higher price than neighbors who do not resort to such swindling tricks. The only pretence of justification is the old one: "If my neighbor does so, I must or sell nothing." If this excuse is valid, then every man has a right to steal to *keep up* with thievish neighbors!

Fortunately the practice is comparatively new and limited in our country, so far as regards the American Merino sheep. If leading breeders will rigorously eschew and brand it with their outspoken condemnation, it will soon disappear. If they will not, at least the buyer has a patent duty in the premises, and that is to avoid every highly pampered flock as tainted by *fraud;* and can he who attempts a fraud in one particular be trusted in others? Are his *pedigrees* of sheep of any value?

While I intend to be distinctly understood as not including early shearing and summer sheltering, if avowed, among frauds, I again call attention to the fact that they can be and are made potent auxiliaries by those who pamper for dishonest purposes, and therefore they have the odor of bad association on them. Is this not an additional reason for abandoning them? Is it not the safest, fairest and best course, on the whole, to abandon *all*

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unnecessary* and over artificial, and, for all legitimate objects, wholly profitless systems in the management of our sheep? These remarks imply no objection to *good* keep in summer and winter and to good winter shelter; and though a cavil might be raised as to where the demarcation line is to be drawn between good keep and pampering, every flock master possessing common sense will fully understand the distinction, without any explanations.

Breeding.

The art of breeding is the art of selecting and coupling together those males and females which are best adapted to produce an improved and uniform offspring. Some of its important principles have already been alluded to under preceding heads. The first great rule of breeding is that like produces like. But this must be held to extend to blood as well as individual characteristics, or else it is a rule which will mislead the inexperienced. Let two mongrel animals of the closest resemblance be coupled together and there is not the least certainty that they will reproduce themselves in their offspring, or that their offspring of different years will be like each other. I have already spoken of the cropping out of base blood.

In selecting animals for coupling, especial pains should be taken not to interbreed those possessing the *same* defect, because in that case observation proves that the offspring inherit something like the aggregate of the defect of both parents—that is to say, if the ram is defective in the crops (in proper fullness back of the shoulders) to an extent expressed by 2, and the ewe to an extent expressed by 3, their offspring will possess the defect to something like the extent of 5. Of course this rule is not invariable, and would not continue to apply to its full extent if breeding between the produce of these similarly defective animals was continued, for in that case they would soon have no crops at all. I like the arithmetical form of the statement, however, because it holds up before the mind in a tangible and impres-

* There are places, undoubtedly, where it may be more prudent to shut up sheep nights to protect them from dogs. Where this is immediately stated to you by a gentleman like William Chamberlain in regard to his costly imported sheep, you feel that there is a necessity for it; and if he frankly adds that he prefers thus to preserve the color of his sheep, according to the German system to which they have ever been used, you are fully satisfied with his motives.

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sive form the consequences of one of the worst errors of bad breeding.*

A defect may be an individual or family one. The latter is far more likely to be transmitted to the progeny. The other some times appears to be accidental, and is not forcibly transmitted. I would rather breed from a slightly defective animal from a very perfect family, than from a very perfect animal from a slightly defective family.

The obstinacy with which family peculiarities are sent down to remote generations, finds constant exemplifications. Do we not, in the red and tawny and occasionally black spots which appear on the legs, ears, and even bodies of new born Merino lambs, find traces of the fine-wooled flocks of those colors in Spain, described ages ago by Strabo, Pliny and Columella? Between 1824 and 1826 David Ely, of Pompey, N. Y., purchased an imported Saxon ram of surprising individual excellence, but marked with this peculiarity: his ears were not half the length or breadth of the normal ear.† He transmitted the same peculiarity to his offspring, and they retransmitted it. I have seen animals of the fifteenth or twentieth cross away from these "little eared sheep," as they are called—that is, no ram possessing that characteristic was used in all those crosses—and yet the peculiarity was fully preserved. I have seen large, coarse-wooled mutton sheep, with Mr. Ely's Saxon blood nearly all bred out, arithmetically speaking, carrying the same distinctive mark. If it disappears for a generation or two, it often crops out again in full vigor.

The defects of one parent should be met by peculiar excellence of the other parent in the same point. If the dam is "high on legs," she should be bred to a ram with short legs; if thin-fleeced, to an uncommonly thick-fleeced ram, and so on.‡ This, however,

* It would be strictly accurate to say that if animals possessing the same defect are interbred with each other, the offspring should be *expected* to inherit that defect to a greater extent than either parent, and that continuing such a course of breeding would soon increase the defect to the greatest practicable extent, and in the case of defects affecting the constitution of the animal, to a fatal extent.

† I think Mr. Grove told me that this peculiarity first originated accidentally or as a monstrosity in Saxony, but that as it occurred on a very superior animal, the owner continued to breed from him and his descendants. They failed, however, to obtain a permanent standing, as their ears did not admit of either of the German systems of numbering on those members.

‡ I have already alluded (under head of crossing) to a German theory in opposition to "violent crossing," even to get rid of defects. So far as size is concerned, I have no doubt of its accuracy, but after thirty years observation I have yet to learn that a ram can be *too perfect*

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is to be understood within certain limitations. These counteractions are to be sought within the circle of proper excellence and proper uniformity in other particulars. The distinguishing features aimed at in the flock are neither to be sacrificed nor constantly changed or disturbed for the purpose of producing a sudden amendment in a single point.

There is a practical fact of the utmost importance in the selection of breeding rams. All do not transmit their qualities in an equal degree to their offspring. The power to "mark offspring," as it is termed, according to my observation, depends most on two properties. The first and by far the most influential of these is blood. By blood I mean nothing mysterious or unexplainable. I simply mean that blood which has flowed so long in one distinct channel, and through animals so closely alike in all their properties, that it has acquired a power resembling that of species—a power continuously to reproduce animals of the same family and almost the same individual characteristics. Under this definition the unsightly ass may have as high and pure blood as the winged courser of Arabia—the miserable, hairy, broad-tailed sheep of Asia and Africa, as the far descended Merino of Spain.

The ram should not only then have a faultless pedigree, but, if practicable, be drawn from an old, distinct, well-marked family of Merinos that have been the same as a whole and uniform among themselves for a long course of generations. I used to notice, when I dabbled in crosses between Merinos and coarse breeds, that a ram which was the produce of in-and-in breeding stamped his properties on the mongrel offspring with peculiar force; and I am not certain this rule does not obtain to some degree among full bloods. I am inclined to question whether the great cavanas of Spain, some of them once numbering 40,000 sheep, would ever have acquired their remarkable identity of characteristics without that in-and-in breeding to which they were subjected. Some intelligent observer of them in Spain, fifty or sixty years ago, whose name I do not now remember, said that in every hundred there were ten rather better and ten rather

in the characteristics desired, to be coupled with the most imperfect ewe. Nay, I would go a step further in the direction of violent crossing, by coupling animals of *opposite extremes* in *many* points. For example, I would (other things being equal) breed dry-wooled French or coarse-wooled sheep to my yolkiest fleeced ram, even though that ram was too yolky fleeced to be used with ewes which already had enough yolk. If this is correct breeding, it follows that a defect is sometimes counteracted by a defect, or by an opposite excellence carried so far as to become a defect.

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worse ones, but that the other eighty could hardly be distinguished one from another.

The second property I have noticed in the ram, which gives him the power strongly to impress his qualities on his offspring, is constitutional vigor. He should be thoroughly masculine. He should be compact and massive in every part—his large scrotum almost sweeping the ground. He should not have a particle of a "ewe-look" about him. Even his fleece should not be as fine as a ewe's fleece. He should have strength to knock down an ox. He should have undaunted courage and delight in battle—fighting with desperate determination until slain or acknowledged master of the flock! I have often seen a ram that if shut in a barn would go through the side of it at a single blow like a catapult. Other things being equal, such are more usually, according to my experience, the rams which transmit their characteristics to their descendants.

But where blood and constitutional vigor are apparently equal, there is still an undeniable difference in this particular—how occasioned it is impossible to say. No one can pronounce confidently that he has a prime sire ram until the ram has been actually tested. Unless found to produce highly excellent and *highly uniform* offspring, the showiest and costliest animal should be promptly abandoned.*

The wonderful ram of mine mentioned in Sheep Husbandry in the South,† whose wool Dr. Emmons proved, by actual admeasurement, to be finer than most Saxon wool, and who yet produced a heavy fleece for those times—highly-bred and far descended, a model of beauty—did not reproduce his own traits very strongly in his offspring—certainly not his exceptional fineness. And this exhibits the effects of another well-settled rule, that the reproduction of exceptional valuable traits—exceptional either to the variety or family—can never be counted on with confidence. It seems to me, indeed, that they are less reproductive than exceptional bad traits. Nature appears to have intended that the improvement of her handiwork should be a high art, calling out

* The noblest figure of a ram I ever saw, without an exception, and an animal for which the owner had paid a high price two or three years before, was under my eye a short time since. After looking at him, I asked to see the lambs gotten by him the preceding year. The owner had none to show. He had not used him "because, &c.," but had used a ram of comparatively insignificant appearance. In the face of such a fact, all the excuses in the world would not tempt a sensible man to give $10 for a brute which cost over $200.

† At page 135.

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observation and intellect, not the bungling process which ignorance and folly are to stumble on.

A ram of no extraordinary individual qualities is sometimes found to be a remarkable sire. He who obtains one of these highly valuable sires, should cling to him as he would to gold, whether individually he ranks in the first or second class. This "marking" property is sometimes carried so far that a familiar and observing eye will promptly detect its effects in a strange flock, picking out every animal got by the particular ram, and even picking out his descendants, if bred among each other, for all subsequent generations.

Present Course of Breeding in the United States.

I shall introduce this topic with the following pregnant words from a letter recently received by me from an observing manufacturer. He writes:

"If I had time I should hesitate to attempt to answer your interrogatories, for the reason that the interests of wool-growers and manufacturers from present stand-points are conflicting and will conflict so long as the grower *can sell grease and tar and yolk and oil at same price as wool.* Our farmers have no desire to learn how little wool they sell; they prefer to be instructed in the secret of adding dirt and unwashed tags and dung-locks covered with fleece and wound with two to four ounces of rope yarn called twine."

This is a fair statement of the case on both sides, only the writer should have added that in many cases farmers have intentionally and greatly lowered the quality of the wool itself in order to get more weight. I have already clearly taken the ground that medium wools are more profitable than the finest for general production in our country; but is it not a pity to see the good, even, true, elastic, sound and soft wool which the American Merino inherited from his Spanish ancestors, degraded in every particular—put on a par in value with half-blood wool—mixed with hair and jar—and all this done intentionally? Yet who is to wonder at it and at the additional commixture of filth and rope yarn, if the wool buyer will pay within three or four cents a pound as much for this compound of abominations as for good clean wool!

And there is another party who is found quite as ready to encourage this line of breeding and management as the manufacturer, namely, the ram buyer. Does he inquire what amount of good, well-washed, clean wool is produced by the animal he wishes

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to purchase? By no means. He only wishes to ascertain what aggregate of wool, yolk and dirt can be sheared from it and called a fleece. He has two objects in view. He wants a ram surcharged with yolk for the purpose of breeding up a flock surcharged with yolk, and he wants one whose weight of fleece he can boast of and perhaps publish, for he has some eye on becoming a ram seller himself by-and-by. He has learned that these highly yolky rams greatly increase the weight of fleece when bred with a dry-wooled flock, and he strives therefore to make his flock as yolky as possible. He has not learned that beyond a certain point this source of increased weight prevents a further and still attainable increase of weight.

Here, too, the manufacturer is responsible, for the same means which would correct illegitimate wool-growing would correct illegitimate breeding.

Whence arises this want of discrimination in prices on the part of our manufacturers—this strange abnegation of their own real interests? We have no more honorable or intelligent class of business men. I believe none see more clearly or deplore so deeply the present course of things. It is the result of a system almost forced on them by circumstances, and from which it is not easy to escape. Our farmers do not and will not send their wools unsold to market. The depot system was tried and failed. Americans choose to do their own bargaining. There is but now and then a locality where there is wool enough to pay for sending an experienced agent to it, and to each scattering lot of wool within it, and the same agent could not traverse a large region of country before the clip of the year would be picked over and the most desirable lots bought in by other purchasers. Accordingly to get an even chance to buy from first holders, an establishment which works up great quantities of wool must have an army of agents promptly at work as soon as shearing is over; and for the reason already stated, local agents must be principally relied on. A portion of these are excellent judges of wool, but where the demand is active, inexperienced ones are necessarily employed. To keep his agents duly informed, and to protect himself from their indiscretions, the principal, from time to time, sends out prices which are not to be exceeded. The agent works for a commission, and is of course anxious to make large purchases. If the competition is to be active, a scramble commences

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at shearing time. Three or four or half a dozen agents start out from every village. Relying more on the reputation of each flock than on a business-like inspection of the quality and condition of the wool, the least experienced agents buy most rapidly, and then rush along eager to keep the lead of or again repass other agents whose horses are smoking on the same road. The excitement increases. All wools worth within ten or fifteen cents of the maximum price are dragged up within two or three cents of it; heavy yolky wools are purchased at about the same price with clean ones; in short, scarce a shadow of judgment is employed.*

This system operates most injuriously on the producers of the best and cleanest wools who do not live near good markets. The maximum price is a Procrustean bed to which they must be cut off, though their neighbor has been stretched to its length! If they refuse to sell when all their neighbors are selling, they have reason to fear no more buyers will come in to pick up half a dozen scattering small lots in a whole county. So they often reluctantly succumb and get only two or three cents more on the pound than other men whose wool is fifteen per cent. coarser and fifteen per cent. dirtier. This soon drives them out of wool-growing or into growing coarse, dirty wools.

I *fear* that the manufacturer has looked with rather more toleration on this system, because sometimes perhaps he thus gets enough good wool under price to offset overpayments on bad and dirty wools. However this may be, one thing is certain, that if he continues to permit the sacrifice of friends for the benefit of enemies, he will within a few years not have enough of the former left to keep up the present equipoise in his over and under payments. The soap sheep, as they should be called, are rapidly spreading everywhere, and farmers seem to wash their wool more and more poorly.

Am I asked what practical remedy can be adopted? It is not easy to point it out. But I have always believed that if each

* A farmer gave me an amusing instance of this. His wool was just off. He stood in his barn door, and saw two agents approaching with "fast nags." The first one rushed into the barn and asked the price of the clip, and it came within his maximum. He asked where the wool was, and was told it was in a dark granary. "Never mind," said he, "I can tell just as well by feeling." So he stepped into the granary, touched a few fleeces, took the farmer's offer, jerked out $25 to "bind the bargain," sprang into his sulky and was off in a whirlwind of speed. What the seller thought remarkable was, that he could *feel* wool so well through his black kid gloves which he forgot to take off while in the barn! And he had never handled the wool before.

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manufacturer would select his regions for purchase, buy in those regions every year, and employ a few trusty and experienced traveling or local agents, tied down by no maximum price which *disregards quality and condition*, instructed to buy the different qualities* and pay for each the fair market price, he would soon acquire his circle of customers, who, for safety and from motives of policy, would wait a reasonable time for his agents. At least this would be the case with holders of prime lots, and there would be no scramble and overpaying for inferior lots by themselves. There is nothing chimerical in this idea, certainly, when it is notorious that some manufacturers already practice on it successfully, and that much of the other produce of the country is bought and sold in that way.

Substantial wool merchants planted in each wool-growing region, would afford a vast relief from the present system to the producers of good wools.

In respect to selling an outrageous excess of yolk and dirt for wool, because somebody will buy it, I shall raise no questions of casuistry; but whether known or unknown to the purchaser, it should be below the aim of the elevated breeder. If we cannot breed the admirable domestic animals which have been given to us, without purposely alloying and degrading them, let us abandon them and turn to other occupations.

Suggestions as to the Future of Fine Wool Husbandry in our Country.

I am strongly impressed with the opinion that the production of mutton, has been too much diregarded as a concomitant of the production of wool. Near large meat markets, mutton is the prime consideration and wool but the accessory; remote from such markets, the converse of the proposition is true. But it does not follow in either case that the secondary object is to be *unnecessarily* neglected.

The increase in the numbers and in the early maturity of sheep, enables England to support a vastly larger population than it possibly could have done 100 years ago. It is hardly too much

* If it be said a single manufacturer does not want all the different qualities, let him, in regions where little is grown, buy *all* in order to keep his customers and his *region* to himself, and re-sell those he does not need. In regions where larger quantities are grown, different buyers would find room, and they might buy through the same agent.

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to say that the continued sustenance of its people and the fertility of its soil depend upon these animals. England proper, with an area of 50,922 square miles, has thirty millions of sheep. Without these, its soils could not be maintained in their present productiveness, and its population of 17,000,000 supplied with animal and vegetable food. It is now a conceded fact that an equivalent result could not even approximately be obtained by the substitution of any other animals.

It is not safe in a country of vast territory and sparse population, like our own, to decide economic questions exclusively by English analogies and modes of reasoning. But in our own older Northern States, we are making some advance toward English conditions, at least in the circumstance of having a large class who are not agricultural producers; and we shall continue to make nearer approaches in that respect.

We read much of the traditional "roast beef" of England, but mutton now is the favorite animal food of her luxurious classes and the cheapest animal food of her laboring classes. The same tastes and economic considerations are beginning to obtain a rapid prevalence in this country. Every experienced meat producer knows that a pound of well fatted mutton can be grown more cheaply than a pound of any other well fatted meat. And our consumers are discovering that it is as palatable and nutritious as any other kind of animal food, and wastes materially less in cooking than beef.* The choicest qualities now command higher prices in our markets than the choicest qualities of beef. Its consumption is rapidly increasing in cities† and also in small

* The Report on Sheep Husbandry made to the Mass. Board of Agriculture in 1860, by a committee appointed by that body, thus condenses the result of various experiments on this subject: "English chemists and philosophers, by a series of careful experiments, find that 100 lbs. of beef, in boiling, lose 26½ lbs., in roasting 32 lbs., and in baking 30 lbs. by evaporation and loss of soluble matter, juices, water and fat. Mutton lost by boiling 21 lbs., and by roasting 24 lbs.; or in another form of statement, a leg of mutton costing raw, 15 cents, would cost boiled and prepared for the table, 18¼ cents a pound; boiled fresh beef would, at the same price, cost 19¼ cents per pound, sirloin of beef raw, at 16½ cents, costs roasted 24 cents, while a leg of mutton at 15 cents, would cost roasted only 22 cents.—(See Secretary's Report, p. 97.)

† The Report just quoted from states that, "at Brighton (near Boston), on the market day previous to Christmas, 1839, two Franklin county men held 400 sheep, every one in the market, and yet so ample was that supply, and so inactive the demand, that they could not raise the market half a cent a pound, and finally sold with difficulty;" that "just twenty years after that at the same place, on the market day previous to Christmas, 1859, five thousand four hundred sheep changed from the drover to the butcher." (Sec'y's Report, p. 96). This is but an example of the general change. It has not been produced so much by increase of population, as by a change in the habits of our population.

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inland local markets and on farms, because prime lamb or mutton can always be supplied in the latter places, whereas meat from large well fatted beeves cannot be, unless in cold weather, as such animals make more meat than can be disposed of unsalted in such situations.

Consequently vast droves of grade sheep from the Northwestern States traverse New York from midsummer to the approach of winter, directly for our Eastern cities, or to be sold in their vicinity for feeding.

Why not meet a large part of this demand, now supplied from abroad, with our full blood Merino sheep? Even the epicurism of England has decided that this breed produces prime mutton. Sir Joseph Banks, in a report made in 1802, says: "Experience has demonstrated already, both at Windsor and Weybridge (the royal residences), that Spanish mutton is of the best quality for a gentleman's table." Mr. Wilson, the present Professor of Agriculture in the University of Edinburgh, in a recent excellent paper on "The various breeds of Sheep in Great Britain," furnished by him to the Royal Agricultural Society's Journal,* says: "They (the Merinos), are hardy, and not more subject to disease than our other breeds; they thrive very well on moderate keep, and may be fed up to 110 to 120 pounds weight at two years old; the mutton is considered to be of very good quality."

The report of Tessier and Hazard made to the Institute in France, in the year eight of the Republic, shows that the same opinion prevailed even thus early in France. They say: "The experiments we had formerly made in feeding of Spanish sheep have not been fully detailed. It has been undeniably proved that all those animals were fattened, and their flesh was at least as delicate as that of any other breed of sheep." Various French writers confirm these views.

It is to be remembered that in England the Merino mutton had to encounter long established and obstinate prejudices. Its people were accustomed to carcasses of a particular form, fat laid on in a particular way, and more of it in proportion to the lean meat than the Merino readily takes on.

On the other hand, the great body of Americans are neither accustomed to, nor do they choose, excessively fat fresh meats of

* Vol. 16. It is republished in the Transactions of this Society, 1857, p. 219. The extract I make will be found at p. 239.

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any kind, and particularly mutton. Most of them after attempting to eat well cooked New Leicester or Dishley mutton, with two and a half or three inches of outside fat, turn away from it with loathing, or eat only the leaner parts. Yet the English factory operative or farm laborer finds just what he wants in that mutton, because its fat will in soups, &c., convert a large amount of vegetables into more palatable and nutritious food, and thus it will go further in imparting the effects of animal food than any other meat.

The meat of the Merino when well fattened and properly treated,* is juicy, short-grained, high-colored and well flavored. In all these particulars American taste adjudges it superior to the meat of the English long-wooled sheep. Though the scarcity and value of full blood Merinos have prevented many of them from appearing in our markets, the grades have always been favorites with the butcher and consumer. The former finds that they weigh well for their apparent size and get to market in excellent condition. There is not a drove that sweeps from the plains of the northwest that does not exhibit a sprinkling of this blood, and if they are merely grass fed, the twenty fattest and least travel-worn sheep in the drove will usually be found those which, by a little darker tinge of their wool and its greater thickness and "squareness on the ends," betray more Merino blood.

Those people who pay such prices in our cities for South Down lambs in February and March, are not perhaps aware they are paying for grade Merinos. Ewes having no Merino blood do not allow themselves to be impregnated (that is, generally and with regularity) early enough in autumn to produce these lambs. The grade Merino ewes are bred to the South Down ram, which gives the offspring additional size and the dark-colored legs which satisfy fashionable purchasers.†

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* A portion of our population cook and eat mutton as soon as it is killed!

† Samuel Thorne, Esq., of Dutchess Co., one of the most intelligent and successful breeders in our State, writes me on this subject:

"The sheep purchased for breeding market lambs are usually the ordinary Ohio Merinos, sometimes bought from the droves as they arrive, and sometimes from the farmers who have kept them over one season. I always prefer the latter, the difference in price alone causing me to purchase the former. When selecting them, the point of the greatest importance is to get good milkers, that governing the choice more than anything else, as the object is to get prime early lambs. When there has been a chance to select ewes with a cross of either of the mutton breeds, I have always availed myself of it, though the difference in price between them and the ordinary ones is generally too great to make it as profitable. All things being equal, large sheep are of course preferable to small ones. Ewes with a strong tincture of

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The full blood Merino produces as good mutton as the ordinary country and western Merino grade, if killed as young and in as good condition. I have never discovered that it did not fatten as easily. It costs no more, in proportion to weight of carcass, to keep it. Its wool is worth from a third to a half more per head. Wherever, therefore, it is profitable to grow the common grade sheep, partly for mutton and partly for wool-growing purposes, it is more profitable to grow full blood Merinos. In the State of New York we could, by the substitution of fine, heavy fleeces for those now carried by our grade sheep, profitably grow 200 per cent more of mutton in the wool-growing districts than we now do.

I shall nowhere, however, be understood to advance the idea that it would be advisable in the mutton districts proper (where access to a good market is quick and cheap) to substitute the Merino for the best English mutton varieties. Though I am not prepared to speak from adequate experience on that point, the tenor of reliable testimony would seem to be clearly the other way.

For mutton purposes the Merino can promptly and readily be rendered more valuable than it now is without a diminution of

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Merino blood take the ram with more certainty early in the season than those deeply crossed with the mutton breeds. It is, however, no advantage to have the lambs come too early, as they do not bring so large a price before as they do in the regular season. My own ewes are turned with a South Down ram the 1st of September, thus bringing the lambs the first part of February. They are made to grow and fatten as rapidly as possible, and are turned off to the butcher when they reach 40 pounds in weight. They are thus all disposed of by the 1st of June, and the ewes have the entire summer to fatten in. The sheep are bought usually a few weeks before the ram is to be turned with them, and have cost from $2.50 to $3.00 each. They are kept upon hay alone until just before the lambing time, when a daily feed of turnips is given. After the lambs come they are given also a feed of meal or bran slop. A place is partitioned off for the lambs, and they are regularly fed. The feed going directly to the lamb, makes growth of fat with more profit, in my opinion, than when given through the mother's milk. I cannot say with any certainty what the percentage of increase with my common sheep has been, as when possible to find any one to take a twin lamb, it is always given away, that its mate may have the better chance—one *good* one bringing in the early season a corresponding price, when poor ones cannot be at all disposed of. They never, however, average less than 100 per cent. of sale sheep. * * * The lambs go to market from two and a half to three months old, and have, of course, at that early age to be in fine condition to bring the price they should do, or in fact even to meet a sale. My own have always averaged me $5 per head, bringing more when first sent off, and less later in the season. The ewes having only to provide for themselves during the summer, are by fall in very good condition and require a very little grain (which is first fed to them as soon as the frost injures the grass) to fit them for a good market. They have always averaged $5 also. To this is to be added the fleece, when you will see the return has always been a good one. It, to be sure, costs more and requires more care and attention to fit lambs for the early market, but the extra price they bring and the better chance which is given the ewes to fatten by getting off their lambs so soon, much more than compensate."

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the quality and quantity of its wool. It probably could not be made to assume so early a maturity as the New Leicester or the South Down, or their peculiar forms; but Prof. Wilson has told us what the pure Merino will weigh at two years old, when fed as the other English breeds are which exhibit such marvellous earliness of maturity. Early feeding and early maturity have an inseparable connection, and those who have bred English New Leicester sheep, and fed them only hay and grass, and treated them as we treat our other sheep, have found that much of their early maturity has vanished. But without reference to this consideration, we have not, in a country so large in proportion to its population, and where it is so easy consequently to supply the demands of its meat market without killing animals at an early age, occasion, certainly in large portions of it, for the early maturity of animals so necessary in England, provided ours will pay well for the additional expense of longer keeping.

I have, as already stated, kept Merino sheep more than thirty years. During all the vicissitudes of that period the fleeces of the flock (without counting those of wethers which I have never kept in any considerable number) have averaged over two dollars a head per annum. On the best lands of the State it now costs about two dollars a head annually to keep Merino sheep. Any one, then, is sure of his lambs and manure as *clear gain*. Wethers of the same flock would produce fleeces worth about three dollars, and the clear gain on them annually would be a dollar a piece and the manure.

The object of keeping sheep is to convert the vegetable productions of the farm into the most money and the most manure. Under the circumstances I have stated, and in regions where wool-growing is the primary object, this is as well done by animals of longer as of shorter lives. The truth is, nobody could afford in this country to kill his Merinos at two years old, if they were perfectly matured and fit for the butcher at that age.

Nor do I believe the Merino could readily be made to assume that form which, like the most perfect New Leicester or South Down, puts every ounce of meat on the part where it is nominally most valuable. At all events, I should decidedly object to tampering seriously with its present *best* form. How many American purchasers, in looking for a sweet, juicy piece of mutton, are very careful to examine the angle of the rump, or study the exact

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taper of the thigh, provided there is nothing specially defective in the shape? Are there not little shapeless breeds of mountain sheep in Wales whose mutton outsells that of the South Down? Are there not little, hardy, round, mountain cattle in Scotland whose beef is chosen before that of the rectangular Short-Horn? These refinements are very well in theory and doubtless of some practical value, but they are not in our markets essential to the saleableness of mutton, which the great body of the American people already prefer to that of the improved English long-wooled breeds, and constantly eat, believing it to be South Down mutton or other of equal quality.

The only change which is necessary or desirable to make in the form of the Merino, to improve it as a mutton sheep, is the same which it requires to improve it as a wool bearing sheep viz.: to convert the flocks which now deviate from that standard, into low, round, hardy, easily kept sheep. Good lungs, good health and good animal vigor will alike promote the secretions which produce meat and wool. And in the wool growing regions generally, I should not even consider it expedient to seek to increase the present size of what may be termed good sized American Merinos.

The wethers may at some future day be turned off at two years old, under a system of feeding analogous to the English, but it is doubtful whether this will be found most profitable. Prime full blood ewes will probably never be turned off before they are six or seven; indeed, until their number is enormously increased, they never will be turned off at any ago to the butcher. They have twice or three times the longevity of the improved English breeds, in which early maturity is, indeed, the precursor if not the cause of an equally early decline. Merino ewes not unfrequently raise good lambs at fourteen or fifteen years old, and the dam of the once famous "Robinson ram," I am informed had a lamb in her twenty-second year.

In regions sufficiently accessible to market, it may become ultimately the most profitable way of disposing of full blood ewes, to adopt Mr. Thorne's system with them; raise February lambs and fatten off the ewes in the fall when they are from six to eight years old. Older ewes should be allowed to produce no lambs the season they are to be fattened.

One more question remains in regard to our future. It costs

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twice as much to keep a sheep in New York as on the plains of the Northwest, and four times as much as on the prairies of Texas. Can we continue to bear up under this competition? The same question may as well be put in regard to most of the principal agricultural necessaries of life—for the difference in the cost of production is equally great in regard to them—and several of them, too, are as portable as wool and more portable than mutton. Do the New England farmers get a poorer living than they did before the competition of the twice as valuable lands of New York opened *close* upon them? Are prices lower in New York since the vast West and Northwest became populated farming lands?

The increase of the non-producers has more than kept pace with that of the producers; and nearness to market, the consequent ability to take advantage of its fluctuations, the greater certainty of finding ready sales, and the lesser cost and risk of transportation, give the cultivator of our New York lands advantages over the cultivator of remote and cheap ones, which tend in a considerable degree to equalize their profits. Were this otherwise, what help is there for us? Can we let our costly lands lie idle because there are cheaper ones in the West and South? The only question with us is what staples we can grow *most* profitably.

Besides, on our grain-growing soils, at least, sheep are an absolute necessity of good farming. The growing of wheat, clover seed, &c., cannot be carried on economically and systematically without some depasturing and manure-producing animal. For both of these purposes, the sheep is a vastly more profitable animal than any other. Mr. Johnson, of Geneva, and Gen. Harmon, of Wheatland, two as good wheat farmers as there are in the State, have thrown a flood of light on this subject by their experiments and their writings.* Leading clover-seed raisers assure me

* Since the above was written, I have received a letter from Mr. Johnson on the subject. He says that "sheep and wheat farming ought to go hand-in-hand in this country," that what "he has made in the last forty years has been in a large proportion by sheep." He has "fed (fatted) sheep in winter for over thirty years, and with the exception of 1841-2 they have always paid the cost of feeding, and some years left a handsome profit." That is to say, for every year but one, during that period, he has converted the hay, grain, &c., of his farm into manure *on the farm*, and got back the full price of those products and cost of feeding; and in some years he has done better than this. "His profits have been better since 1840 when he commenced wintering on straw and oil cake or grain. After 1846 he kept no regular flock, but bought them in the fall and sold them usually in March or April. In some instances he held them until after shearing but found that he seldom did as well as by selling earlier."

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that they must have sheep to carry on that culture profitably. Sheep would be more profitable than cows on a multitude of the high, thin-soiled dairy farms of our State; and every person who has kept the two animals ought to know that sheep will enrich such lands far more rapidly than cows.* On the imperfectly cleared and briery lands of our grazing regions, sheep will more than pay for their summer keep, for several years, merely in clearing and cleaning up the land. They effectually exterminate the blackberry (*Rubus villosus et trivialis*), and raspberry (*Rubus strigosus et occidentalis*), the common pests in such situations, and they banish or prevent the spread of many other troublesome shrubs and weeds.† They also, unlike any other of our valuable domestic animals, exert a direct and observable influence in banishing coarse, wild, poor grasses from their pastures and bringing in the sweeter and more nutritious ones.‡

Gen. Harmon, and I think a majority of wheat farmers who have sheep, prefer keeping a permanent breeding flock. This is a question of convenience—depending upon incidental considerations which this is not the place to discuss.

* If milch cows are not returned to their pastures at night in summer, or the manure made in the night is not returned to the pastures, the difference in the two animals in the particular, named in the text, is still greater. Even grazing cattle kept constantly in the pastures, and whose manure is much better than that of dairy cows, are still greatly inferior to the sheep in enriching land. The manure of the sheep is stronger, better distributed, and distributed in a way that admits of little loss. The small round pellets soon work down among the roots of the grass, and are in a great measure protected from sun and wind. Each pellet has a coat of mucus which still further protects it. On taking one of these out of the grass, it will be found the moisture is gradually dissolving it on the lower side, directly among the roots, while the upper coated surface remains entire. Finally, if there are hill tops, dry knolls, or elevations of any kind in the pasture, the sheep almost invariably lie on them nights, thus depositing an extra portion of manure on the least fertile part of the land, and where the wash of it will be less wasted. The manure of the milch cow, apart from its intrinsic inferiority, is deposited in masses which give up their best contents to the atmosphere before they are dry enough to be beaten to pieces and distributed over the soil.

† Two years since I hired forty acres of pasture, five or six of which were partly overrun with blackberry and black and red raspberry bushes. I stocked the land heavily with sheep. The next year almost every bush was dead, most of them apparently untouched by the sheep, certainly bearing no marks of having been stripped of their bark. I had not dreamed of the sheep effecting anything like such a rapid and wholesale extermination; but it was generally attributed to them, and no other cause for it could be even conjectured. Many of the bushes had been peeled by the sheep, and the extremities, buds, flowers, &c., nipped off. Sheep will frequently attack the elder (*Sambucus Canadensis et pubescens*) at particular periods of the year. Indeed the tender leaves and buds of few bushes escape them. They attack some weeds, but banish more of them by manuring the land and increasing the growth of grass, so that the weeds are run out. Where the Canada thistle (*Carduus arvensis*) is not tall and rank sheep will generally keep it from becoming so, where the land is not very rich, by nipping off the tops and the flowers. I do not know however that it meddles at all with the common thistle (*C. lanceolatus*).

‡ They effect this principally through their superiority as manuring animals. I have used the term "valuable" domestic animals, for I suppose the goat would probably produce the same effect with the sheep, in these particulars.

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Yet dairying is wholly driving out wool growing in the grazing portions of our State, and grazing cattle are preferred to sheep on probably a majority of our grain farms. The remarkable decrease of the latter in proportion to our population is made apparent by the following table compiled from the United States and State censuses. Mr. Kennedy, Superintendent of the United States Census office, has kindly furnished me with statistics of the census of 1860, in advance of their official publication:

Year.	Number of sheep.	Pounds of wool.	Population.
1840	5,118,777	9,845,295	2,428,921
1845	4,505,369	13,864,828	2,604,495
1850	3,453,241	10,071,301	3,097,394
1855	2,630,203*	9,231,959	3,466,212
1860	2,617,855	9,454,473	3,880,728

The State census of 1845 gives separate returns of sheep over and under one year old, and those over one year old are alone placed in above table; for if lambs were included we should get no idea of the average number of the year or the average weight of fleeces. The annual number of lambs does not, however, equal the number killed, driven out of the State, or which die from disease, for otherwise the aggregate number of our sheep would not be steadily decreasing. The United States census of 1850 and 1860 gives only sheep one year old and over; but the State census of 1855 gives the entire number of sheep without respect to age, and the number is 3,217,024.† If this number were placed in the table, it would convey a wholly erroneous impression of the actual number left in the State after the usual annual decrease from the causes above stated, a wholly erroneous impression of the average weight of fleeces, and it would be inconsistent with the rest of the table.‡ For these reasons I have given the number of fleeces instead of sheep returned in 1855. This should approximately give the number of sheep in the State at shearing time over one year old; and as it would mainly exclude both the annual increase and decrease, it would unquestionably approach

* Number of fleeces.

† I state this fact on the authority of Mr. Johnson, the Corresponding Secretary of the State Agricultural Society, who has examined the State census for me, a copy of it not being in my possession.

‡ Except, perhaps, United States census returns of 1840, which I think were taken in the same way.

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about as near to the average number of the year (though a little over it) as is arrived at by any other method.*

Mr. Kennedy also prepared for me the following table, illustrative of the increase and decrease of certain leading branches of husbandry in the State of New York for a period of twenty years:

	1830.	1840.	1850.	1860.
Horses	No returns.	†474,543	447,014	303,725
Milch cows	do		931,324	1,123,634
Working oxen	do	1,911,244	178,989	121,702
Other cattle	do		767,406	727,837
Sheep	do	5,118,777	3,453,241	2,617,855
Wool, pounds of	do	9,845.295	10,071,301	9,454,473
Butter	do	No returns of	79,766,094	103,095,679
Cheese	do	these separate.	49,741,413	48,548,288

Had the United States census of 1830 contained returns of sheep in the State, I have no doubt that a considerably greater decrease would have been indicated between that year and 1840 than between 1840 and 1850.

While the vastly higher priced lands of England carry nearly two sheep for every inhabitant, and within a fraction of 590 sheep for every square mile of territory, it appears that New York has now less than one sheep to every inhabitant, and less than 56 sheep for every square mile; and it further appears that our sheep have steadily decreased for twenty years, and are still continuing to decrease.

But this temporary decay of a great branch of husbandry admits, I think, of reasonable explanation. The history of the introduction of Saxon sheep has been given, their spread over the State and almost total absorption of the Spanish sheep between 1824 and 1835, their ceasing to be remunerative after 1837, and their banishment from our farms in 1846. The great flocks of this State kept for wool-growing purposes anterior to 1840, were mostly of this blood, and when they were abandoned no other wool-growing sheep proper was left to supply their places. For the few improved American Merinos left in the country in the hands of *breeders*, comparatively large prices were asked. It was

* After the amount of public money that is expended on the Federal and State censuses, it is vexatious to find their want of uniformity and glaring want of accuracy. Discrepancies are visible at every step. In looking at the returns of sheep from a single county, in the State census of 1855, (received from Mr. Johnson,) I find that in some towns the whole number must have been returned, in others the sheep which have been sheared, and in others, still, the number of fleeces given considerably exceeds the aggregate number of sheep of all ages! It is certainly very unfortunate if the proper officials cannot hit upon suitable instructions for the marshals, express them in terms which men of common intelligence can understand, and find men of common intelligence to execute them.

† This includes horses and mules.

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not strange that our farmers, recollecting the overthrow of the Spanish Merinos in 1815, smarting under their recent losses with the Saxon, and discouraged by legislation which was prostrating a large branch of the woolen manufactures of our country, were wholly disinclined to venture on any new and costly experiments in fine wooled sheep. In fact that prejudice which should have been directed against visionary investments, injudicious management and vascillating legislation in respect to sheep, became directed against these valuable animals themselves.*

Dairying took the place of wool growing. It proved a steadily and highly remunerative department of husbandry. Fashion, custom, and the farm training of youth tend rapidly to absorb the rural population in a prevailing and profitable pursuit. A generation has been growing up familiar with and attached to dairying and unacquainted with sheep husbandry. And it is not to be denied that the former, in proper situations, cannot be surpassed in profit by any other rural pursuit. Besides, the dairying region proper of the United States bears no proportion, in extent, to the wool-growing region, and therefore competition is less to be feared at home; and as it cannot come from abroad, this interest has less to fear from legislation.

The course of events for the last few years, however, has turned more attention throughout very large portions of our country to wool culture. It is time, in my judgment, when that culture should revive in this State. Our people must now be consuming annually something like 20,000,000 lbs. of wool raised outside our own borders. There is little doubt that instead of thus paying out a large sum for the raw material of a necessary of life, which we have abundant room and time and materials to cultivate for ourselves, we might to grow all the wool we need, and a surplus of 50,000,000 lbs. annually, without diminishing any other product which is even approximately as remunerative.

Dairying, under the best circumstances, is far more profitable than sheep husbandry with inferior or middling animals; but the best sheep are as productive as the best cows, and require far less labor. No dairy farmer who has suitable land and fix-

* The destruction caused among sheep by dogs, has also essentially contributed to the prostration of sheep husbandry. It not only has inflicted serious and, in the aggregate, enormous losses on our people, but it has of late years, as population and sums have increased, driven multitudes of persons out of sheep husbandry, and prevented still more from embarking in it. Proper legislation would do much to correct this evil.

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tures for his business, is called upon to give up the avocation he best understands and sacrifice his fixtures and cattle to embark in a new pursuit, because he has found a single year of depressed prices. No farmer engaged in any highly remunerative husbandry should abandon it for another. We want no more Merino *manias!* The proper increase in wool production can be attained by putting sheep on soils too poor for profitable dairying, by weeding out useless and unprofitable horses, by substituting sheep for grazing cattle on grain and other farms where they are most profitable, by depasturing lands now uselessly in timber, brambles, &c., and by raising proper crops to assist in cheaply wintering sheep.*

And the growth of wool is peculiarly adapted to the pecuniary means and the circumstances of a portion of our rural population. Their capital is mostly in land. Hired labor is costly. Sheep husbandry will render all their cleared land profitably productive at a less annual expenditure for labor than any other branch of farming. By reason of the rapid increase of sheep, and the great facility of promptly improving inferior ones, they will stock a farm well more expeditiously, and with far less outlay than other animals.† And, lastly, the ordinary processes and manipulations of sheep husbandry are simple and readily acquired. On no other domestic animal is the hazard of loss by death so small. It is as healthy and hardy as other animals, and unlike all the others, if decently managed, a good sheep can never die in the debt of man. If it dies at birth, it has consumed nothing. If it dies the first winter, its wool will pay for its consumption up to that period. If it lives to be sheared once, it brings its owner into debt to it, and if the ordinary and natural course of wool production and breeding goes on, that indebtedness will increase uniformly and with accelerating rapidity until

* Sheep can be better and far more economically wintered on hay, straw, and turnips, or beets, than on clear hay. By raising these roots then the farmer can save considerable meadow land and increase his pasture, and thus the farm be made to carry more sheep.

† Soon after shearing, 15 and sometimes 20 ordinary coarse grade ewes can be purchased for $30, the price of a dairy cow. On common keep, these will yield an average of three and a half pounds of washed wool at the next shearing, and so small a number of this class of sheep ought to raise 100 per cent. of lambs. If a *choice* Merino ram is used, the lambs, when grown, will shear at least a pound of wool more a head than their dams. And nearly an equal improvement can be made in the *next* generation. I have, more than once, witnessed a more rapid improvement than this. Even the common fair Merino rams of the country often increase the dam's fleece half a pound in the progeny for two or three generations, commencing on low grade ewes.

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the day of its death. If the horse or the steer die at three or four years old, or the cow before breeding, the loss is almost a total one.

I am aware that it is easy to warm one's self up in praising a favorite pursuit, and to make a plausible show of reasons for what will not stand the test of experiment. But here we deal with fixed data. I refer you to the column of prices for which wool has sold in our country. If the cost of keeping sheep through the same periods is fairly estimated, it will be seen that with prime animals no other branch of agriculture has yielded better or more uniform returns on the capital invested.

The examples of France, Germany and England all show that vastly higher priced lands than any in New York must carry sheep to be made profitable; and in the two first named countries the wool producing sheep is preferred to the mutton sheep—though the growers are exposed to the competition of the far cheaper wool producing lands of Southern Russia and Hungary near by, and of the Cape of Good Hope, South America and Australia further off.

NOTE.—I wish to express my own thanks and the thanks of the Society for which I have prepared this paper, to the various breeders, wool-growers, manufacturers, wool-merchants and brokers, officers of the Society, and other persons who have contributed statements and facts for it. These thanks are, in a special manner, due to George Livermore, Esq., of Boston, for his indefatigable labors in my behalf. H. S. R.

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APPENDIX.

A.

Tariff of 1861.

	Specific duty per pound.	Specific duty per square yard.	Ad valorem duty.
Unmanufactured wool costing less than 18 cents a pound at the place from whence exported	-	--	5
Same exceeding 18c. and not exceeding 24c. a pound	3	--	--
Same exceeding 24c. a pound	9	--	--
Sheep skins with wool on, washed or unwashed	--	--	15
Carpets, Wilton, Saxony, Aubusson, Axminster patent velvet, tournay velvet and tapestry velvet, Brussels wrought by the Jacquard machine, medallion and whole carpets and carpetings, valued at $1.25 or under per square yard	--	40	--
Same valued over $1.25	--	50	--
Brussels and tapestry Brussels do., printed on the warp or otherwise	--	30	--
Treble ingrain and worsted chain Venetian do.	--	25	--
Druggets, bockings, felt carpeting, &c., printed, colored or otherwise	--	20	--
All others not otherwise specified	--	--	30
Mats, rugs, screens, covers, hassocks, bedsides and other portions of carpets, same as carpets of similar character	--	--	--
All other mats, screens, hassocks and rugs,	--	--	30
Woolen cloths, shawls and manufactures of every description, wholly or in part wool, not otherwise provided for	12	--	25

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	Specific duty per pound.	Specific duty per square yard.	Ad valorem duty.
Flannels valued at 30c. or less per square yard	--	--	25
Same valued above 30c. do., and all colored, printed or plaided, or composed part of cotton or silk	--	--	30
Hats of wool	--	--	20
Worsted yarn valued at 50c. and not over $1.00 per pound	12	--	15
Woolen and worsted yarn valued over $1 per pound	12	--	25
Same valued under 50c. not exceeding in fineness No. 14	--	--	25
Same exceeding in fineness No. 14	--	--	30
Ready-made clothing, wholly or part wool,	12	--	25
Blankets, wholly or part wool, value not exceeding 28c. per pound	6	--	10
Same valued above 28c. per pound, but not exceeding 40c.	6	--	25
Same valued above 40c. per pound	12	--	20
Shawls of which wool is the chief component	16	--	20
Delaines, cashmere, muslin and barege delaines, wholly or part wool, grey or uncolored, and other grey or uncolored goods of similar description	--	--	25
Bunting, and all stained, colored or printed, and all other manufactures of wool or of which it shall be a component material, not otherwise provided for	--	--	30

The above act was approved March 2d, 1861. An act amending it passed August 5, 1861, but none of the amendments of the sections in regard to wool or woolens, require to be mentioned here. It is anticipated that another tariff law will be enacted during the present session.

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B.

Value of Ohio fleece wool in October of each year, from 1840 *to* 1861.

	Fine.	Medium.	Coarse.
1840	45	36	31
1841	50	45	40
1842	Price all round,		33½*a*35
1843	41	35	30
1844	42	37	32½
1845	36½	30	26
1846	34	30	26½
1847	47	40	30
1848	32	28	24
1849	41	37	32
1850	47	42	36
1851	41	38	32
1852	49	45	40
1853	55	50	43
1854	41	36	32½
1855	50	42	34
1856	55	47	37
1857*	56	47	41
1858	53	46	36
1859	58	47	35
1860	54	47	37
1861	45	45	50

Prepared by Geo. Wm. Bond & Co., Boston, Mass.

Prices current of New York State fleece wools, from May 1st, 1855, *to January 1st,* 1862:

Year.	Month.	Choice Saxony and Saxony.	Full blood.
1855.	May	45*a*48	37*a*40
	June	45 48	37 40
	July	45 48	37 40
	August	45 48	37 40
	September	45 48	37 40
	October	46 49	40 42
	November	46 49	40 42
	December	44 48	38 40
1856.	January	44 48	38 40
	February	44 48	38 40
	March	47 50	40 42
	April	50 53	43 45
	Average	46*a*50	39*a*41

* We give the price in August, there having been no sales in October.

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Year.	Month.	Choice Saxony and Saxony.	Full blood.
	May	50a53	43a45
	June	50 53	43 45
	July	50 53	43 45
	August	50 53	43 45
	September	50 53	43 45
	October	50 53	43 45
	November	53 56	47 50
	December	53 56	47 50
1857.	January	53 56	47 50
	February	58 60	52 55
	March	58 60	52 55
	April	58 60	52 55
	Average	53a56	46a49
	May	56a58	49a52
	June	56 58	49 52
	July	50 53	45 47
	August	53 56	47 49
	September	53 56	47 49
	October	-----	-----
	November	-----	-----
	December	38 41	31 33
1858.	January	38 41	31 33
	February	38 41	31 33
	March	38 41	31 33
	April	39 43	32 35
	Average	38a41	33a35
	May	39a43	32a35
	June	40 43	33 36
	July	40 43	33 36
	August	42 45	37 39
	September	43 46	38 40
	October	43 46	38 40
	November	46 48	41 43
	December	49 52	44 46
1859.	January	50 58	45 47
	February	50 58	45 47
	March	50 58	45 47
	April	51 54	45 47
	Average	45a50	40a42

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Year.	Month.	Choice Saxony and Saxony.	Full blood.
1859.	May	51*a*54	45*a*47
	June	51 54	45 47
	July	49 52	44 46
	August	49 52	44 46
	September	49 52	44 46
	October	50 54	45 47
	November	50 54	45 47
	December	50 54	45 47
1860.	January	50 54	45 47
	February	50 54	45 47
	March	50 54	45 47
	April	50 54	45 47
	Average	50*a*54	45*a*47
	May	49*a*52	44*a*46
	June	49 52	44 46
	July	49 52	44 46
	August	49 52	44 46
	September	50 53	45 47
	October	50 53	45 47
	November	50 53	45 47
	December	50 53	45 47
1861.	January	46 48	40 42
	February	46 48	40 42
	March	46 48	40 42
	April	46 48	40 42
	Average	48*a*51	43*a*45
	May	46*a*48	40*a*42
	June	46 48	40 42
	July	34 38	34 38
	August	34 38	34 38
	September	34 38	34 38
	October	40 45	40 45
	November	47 52	47 52
	December	47 52	47 52
1862.	January	47 52	47 52
	Average	42*a*46	40*a*44

Prepared by Telkampf & Kitching, New York, Jan. 14, 1862.

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Mr. James Roy, of the Watervliet Mills, West Troy, N. Y., furnishes the following list of average annual prices paid by that establishment for wool since 1852. The purchases include six or seven hundred thousand pounds per annum, and are made in New York, Ohio, Michigan and Vermont.

1852	37½ cents.	1857	41¾ cents.
1853	48¼ do	1858	34⅓ do
1854	36⅛ do	1859	44½ do
1855	36 1/10 do	1860	45 do
1856	39⅝ do	1861	33⅓ do

Mr. Faxton. of Utica, N. Y., sends me the following:

Mr. FAXTON:

Below is actual sales made by me in September of each year, and though in many years great changes have followed, it is perhaps as fair a show of prices as can be given:

	Coarsest.	Finest.		Coarsest.	Finest.
1848	22	35	1855	32	46
1849	25	40	1856	35	48
1850	35	52	1857	36	55
1851	32	42	1858	30	45
1852	36	53	1859	40	50
1853	42	58	1860	40	55
1854	39	40	1861	37½	40

Yours truly,

JAS. ROCKMER, *Utica.*

January 15, 1862.

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C.

The following is taken from a report of the Secretary of the Treasury in 1845:

Value of imports of woolens into the United States:

Year.	Value.	Year.	Value.
1821	$7,437,737	1831	$12,627,229
1822	12,185,904	1832	9,992,424
1823	8,268,038	1833	13,262,509
1824	8,386,597	1834	11,879,328
1825	11,392,264	1835	17,834,424
1826	8,434,974	1836	21,060,003
1827	8,742,701	1837	8,500,292
1828	8,679,505	1838	16,512,920
1829	6,881,489	1839	18,575,945
1830	5,766,396		

It was my intention to ascertain what proportion of the imports of unmanufactured wool fell below the dutiable price, but the scanty time afforded me has not permitted it. As a specimen, however, I append the following table compiled from reports of the Secretary of the Treasury:

Imports of Wool.

	Av., imp'ts of 1837, '38, '39.	Av. imp'ts of 1840, '41, '42.	Imports of 1843.*	Imports of 1844.	Imports of 1845.	Imports of 1846.
Wool not costing to exceed 7 cents a pound,	$558,458	$759,646	$190,252	$754,441	$1,553,789	$1,107,305
Exceeding 7 cents a pound	801,087	1,004,312	54,695	97,019	136,005	26,991
Total	$1,359,545	$1,763,958	$245,047	$851,460	$1,689,794	$1,134,226

* The fiscal year 1842 ended on 30th September. Since then returns of imports and exports have been made up to 30th June. This year, therefore, embraces imports of nine months only, ending June 30, 1843, and subsequent years end 30th of June, 1844, 1845, and so on.

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D.

The Wool Press.

This article has been so much improved recently, and that improvement is so little known, that I am induced to call attention to it. Most wool-growers are acquainted with the excellent press previously in use, consisting of a trough about four feet long and ten or twelve inches in height and breadth, set on legs, with a stationary cross piece at one end and a movable one drawn towards it by a strap and lever with slits for twine, &c. This does up wool more rapidly and vastly better than any person can do it by hand. But in the case of large fleeces it requires too much weight applied to the lever for the operator conveniently to press it down and hold it down with one foot while standing with the other in a convenient place for tying up the fleece. Several contrivances were applied to remedy this difficulty, but finally the true one was hit upon by Mr. James Geddes, of Fairmount, N. Y. By substituting a crank, ratchet wheel, pair of rollers, and the necessary straps in the place of the lever arrangement, even a small boy is strong enough to compress the fleece, and the ratchet wheel and dog will cause it to be held compressed as long as is wanted by the tyer; the crank being then reversed, carries back the sliding cross-piece to the opposite end of the trough again. It is now apparently a perfect machine. No patent has been taken out for it. The machines are excellently manufactured by Storrs Wilber, of Fairmount, N. Y., and cost from $6 to $7. If Mr. Wilber should leave, Mr. Geddes will doubtless see that another manufacturer takes his place, so that it would be as well to address to care of James Geddes.

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E.

Proportion of Wool to Meat in Sheep of Different Ages, Sexes and Sizes.

The President of the State Agricultural Society, the Hon. Mr. Geddes, kindly drew out the following information for me, on the above heads:

Pompey, Onon. Co., N. Y., *January* 27, 1862.

Hon. George Geddes, *Dear Sir:*

Yours of the 15th inst. was duly received, and it is with some considerable pleasure that we can reply so satisfactorily.

Our flock consists of 180, of several grades, one-half to three-fourths Spanish Merino, and a portion of the largest one-fourth French Merino. The base of the flock, but a few years since, was Saxony.

We sheared on the 26th and 27th of June last, and took the trouble to weigh every sheep and every fleece; and to record it on the spot. They were sheared promiscuously, and we have taken the trouble to classify them for our own convenience, both by age and weight. The heaviest sheep weighed 133, the lightest 43. The heaviest fleece weighed 9½, the lightest 3¼. We sold our clip for 40c. it would have brought in six days after, 47 or 48. We sold 24 of the heaviest wethers Oct. 1st for $95, and 24 of the oldest ewes Nov. 1st for $60.

We had about 50 lambs dropped, we raised 35. Some of the remainder died, but the most of them we killed. They had fleshy tumors on their necks, and we were told by many that it was owing to high keeping; we did not believe it then, and have since proved that it was transmitted by the sire. To construct the next to the last column (in subjoined table) we divided the carcass by the fleece, and to construct the last column, we added ciphers to the amount of wool and divided it by the gross weight. We conceived that to be the proper method. If it is not, it can readily be reconstructed, as we are confident that the weights in all other respects are absolutely accurate. You will not fail to notice that the 26 wethers in the first class four years old gave a greater percent. than those three years old, and those of from 110 to 121 pounds in weight more than those above or below that weight. Those two exceptions comprise the same sheep. Were these two excluded, the column of percentage, would gradually

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decrease from yearlings to four years old, and from 43 to 133. Were these four years old not subdivided, the percentage would be 5.58, and we do not know but that, if the classes above were subdivided in the same way it would be with similar results. If you can think of any way in which our data can be any more thoroughly elaborated please inform us, and we will do it with the greatest pleasure.

Respectfully yours,

SWEET BROTHERS.

Classified by age; except those four years old which are subdivided by sex. The four year old ewes all had lambs, and 35 reared them.

Number in class.	Age.	Sexes.			Gross weight.	Weight of Carcass.	Weight of wool.	Average weight of carcass.	Average weight of fleece.	Pounds of carcass to one of wool.	Per cent. of wool to gross weight.
		Ewes.	Wethers.	Bucks.							
32	1	19	11	2	2,160.25	1,991	169.25	62.21	5.28	11.11	7.83
30	2	15	14	1	2,508.37	2,347	161.37	78.23	5.37	13.98	6.43
51	3	9	42	....	5,018.25	4,700	318.25	92.15	6.14	14.19	6.34
26	4	....	25	1	2,921.13	2,736	185.13	105.11	7.12	14.76	6.33
41	4	41	....	....	3,736.00	3,557	181.00	86.75	4.41	19.66	4.84
180	1 to 4	84	92	4	16,341.00	15,331	1,010.00	85.17	5.38	15.17	6.18

Classified by weight; in divisions of ten pounds each.

Number in class.	Weight of Division—from	Sexes.			Gross weight.	Weight of carcass.	Weight of wool.	Average weight of carcass.	Average weight of fleece.	Pounds of carcass to one of wool.	Per cent. of wool to gross weight.
		Ewes.	Wethers.	Bucks.							
5	43 to 51	5	....	....	250	234	22	46.80	4.40	10.63	8.80
14	50 to 61	10	4	....	871	803	68	57.35	4.85	11.80	7.80
20	60 to 71	14	6	....	1,427	1,320	107	66.00	5.35	12.33	7.49
34	70 to 81	21	12	1	2,742	2,567	175	75.50	5.14	14.66	6.38
39	80 to 91	19	20	....	3,566	3,355	211	86.00	5.41	15.87	5.90
34	90 to 101	11	22	1	3,453	3,252	201	95.64	5.91	15.42	5.82
18	100 to 111	4	13	1	2,016	1,905	111	105.83	6.16	17.16	5.50
11	110 to 121	....	10	1	1,353	1,273	80	115.72	7.27	15.91	5.89
5	120 to 134	....	5	....	657	622	35	124.40	7.00	17.76	5.32
180	43 to 134	84	92	4	16,341	15,331	1,010	85.17	5.38	15.17	6.18

Notes to the Messrs. Sweet's statement: The American Merino ram, whose measurements are given in Petri's table, weighed, in fair ordinary condition and with between nine and ten months fleece on, 122 lbs. He has yielded an unwashed fleece, of one year's growth, of 20 lbs., 12 ozs. His wool is not unusually yolky, and he has very little external gum. Here, then, we have on a moderate estimate a pound of *unwashed* wool for less than five and one-half pounds of carcass.

H. S. R.

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CONTRIBUTIONS TO THE KNOWLEDGE OF THE NATURE OF THE CHINESE SUGARCANE—SORGHUM SACCHARATUM, W.

By Chas. A. Goessmann.

There has lately been introduced into the agricultural pursuits of the United States a new plant—Sorghum Saccharatum, W., Holcus Saccharatus, L., commonly called Chinese sugarcane—which, for good reasons, has since excited the interest of the farmers and manufacturers. Although year by year the most gratifying results have been published in numerous reports, coming from various States of the Union, we are still, up to the present time, without a desirable publication of general investigations, as to the nature of this very valuable plant, from a chemical point of view The striking influence in the development of the manufacture of sugar from the beet, of a proper application of chemical principles, prompted the author, two years ago, to call the attention of the agricultural institutes of his native country, Germany, to this matter, by publishing in Dr. Henneberg's "Landwirthschaftlicher Zeitung," Wende, Goettingen, Hanover, his own observations concerning the nature of the juice of Sorghum made during the summer season of 1857, while in Philadelphia. The increased interest which the Chinese sugarcane has assumed, as well as the experience gained during a recent visit to Cuba, have induced me to re-publish my results, having nothing in view but the desire that the following pages may aid in saving time to those who may hereafter be engaged in a more complete elaboration of the subject. Investigations like these under consideration, undoubtedly require repeated testings of the same point in different states of the plant's development, and observations made under various terrestrial, as well as climatical influences. The plants which served for my experiments, were grown on a soil consisting of crumbled syenitic slate, previously manured with a calcareous loam and stable manure.

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Henry S. Olcott informs us that a French missionary, Father du Halde found this plant used for the manufacture of sugar in the interior of China. The French Consul General subsequently coming into possession of the seed, sent them, in 1851, to Paris. The first Asiatic specimen of Sorghum we find at the exhibition at Moscow. In 1854 appeared in Paris the first tolerably complete publication concerning the Sorghum Saccharatum, by Mr. Vilmorin—"Recherches de Sorgho sucre." The juice of the plant has since been worked in that country almost exclusively for the manufacturing of Sorghum spirits. Mr. D. E. Brown found a field destined for that purpose, in the south of France, while traveling, by order of the Patent Office at Washington, in search of plants which might prove valuable to the farming interests of the United States. This gentleman induced the Patent Office to order a quantity of the seed of the new sugar plant, which order supplied the parties interested in this country, with seed to start their first experiments. Besides the Asiatic species, which is the subject of my investigations, we learned, in 1851, of another sugar plant, by Mr. Wray, called Imphee plant, since then also recognized as a Sorghum species.

He found the plant on the African coast near Cape Natal. The first sugar, alcohol, etc., manufactured from the Cape Natal plant, was seen at Paris at the grand exhibition in 1856. Further inquiry has shown, however, that Mr. Wray's Imphee is the same plant which Italian merchants had brought from the African coast some sixty or eighty years before, and raised for a short period in Upper Italy. This species seems to ripen too late to secure a good result in regard to its percentage of sugar, and was probably on that account abandoned. I am informed by the director of a very distinguished agricultural institute, in Hungary, that they have cultivated there, for years, several Sorghum species for green food—probably the Italian plant.

In closing this historical introduction, I will mention the following pamphlets, which were published previous to the appearance of my German article, and from which I obtained the material for some of my estimates:

Olcott, H. S., "Sorgho and Imphee," Saxton, N. Y., 1857.

Stanisbury, "Chinese Sugarcane," Boston, 1857.

Hyde, J. C. F., "Chinese Sugarcane," Boston, 1857.

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I. Chemical Characters of the Sorghum Plant and its various parts.

The plant I allude to has been so often described, and its strong resemblance to the broom corn, before the ripening of the seed, is so generally acknowledged, that I may trust, wherever I shall have to speak of one of its parts, to recall to the memory of most of my readers a familiar subject. I have, therefore, here omitted the botanical description, which is given in my German publication. My experiments, limited by want of time and assistance, treat principally of those questions which decide the industrial value of the plant, leaving several points, of a mere scientific character, to another investigation. I considered it first of main importance to decide the nature of the sugar, if cane or grape sugar; its quantity or their relative proportions to each other, and the conditions under which it is found, and devoted finally some attention to the most remarkable features of the other parts of the plant, and their relative value for various technical purposes.

I ascertained consequently the concentration, the quantity and the nature of the juice, as well as of the organic and inorganic compounds contained therein, and have closed my article with an appendix, treating of some of the means and ways to secure a good crop, and to turn the various parts of the plants to the best advantage for domestic purposes.

A. The Juice.

1. *General Properties.*—The cane used for the following experi ments was taken from the field in its perfectly ripened state, October 20, 1857. The seed leaves had assumed a dark red color; the lower leaves on the stem had lost their freshness, and the whole plant had ceased to increase in size. For the purpose of obtaining the juice, the stem was cut off about six or eight inches above the roots; was freed from the leaves and the top piece of about two and one-half feet to three feet in length, including the seed ear, and then sent through the roller of a small, powerful sugarcane mill.

The stem of a good sized plant usually weighs in that state one and a half to two pounds, and yields sixty-five to seventy per cent. of juice.

A filtration of the fresh juice, through paper, is not applicable on account of the slowness of the operation, as it would unques-

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tionably furnish a filtrate worthless for testing as to the nature of the sugar. I operated consequently with the collated juice. The fresh juice *collated*, as soon as possible, through a piece of woolen cloth, was dark and bulky, had a sweet, although herbaceous after-taste, and was of a greenish yellow color; it deposited in a few hours a voluminous, slimy sediment, of which the more solid parts were white, consisting mainly of torn cells, while the lighter and slimy portion was, owing to the presence of chlorophyl, of a green color. In the same degree as the suspended particles settled, the color of the juice changed to a more yellowish opalescent tint. The fresh juice showed a slight acid re-action, had a specific gravity equal to 9 deg. Baumè, (62 deg. F.,) and began to separate at 65 deg.—70 deg. C., (=150 deg.—160 deg. F.;) a coagulated albuminous matter without becoming limpid. It boiled at 101 deg.—101½ deg. C., (=214 deg.—215 deg. F.,) and a continued boiling only produced the desired result. Kept for a short time by itself, at a temperature of 20 deg.—25 deg. C., (=68 deg.—77 deg. F.,) it began to ferment; a white scum rose to the surface, and settled as the fermentation ceased to the bottom of the vessel, forming there a sediment like yeast. The fresh juice filtered much more rapidly through paper when mixed with a sufficient quantity of a solution of caustic potash; it formed, when to this alkaline liquid was added, a sufficient, though small quantity of sulphate of copper, a clear, dark blue solution, which even after twelve hours standing, at the ordinary temperature, did not reduce a trace of oxide of copper. When, instead of a solution of potash, a small quantity of slaked lime was added, and the mixture heated up to 75 deg. C., (=167 deg. F.,) there appeared a bulky coagulum, which increased in quantity till the boiling point was reached; it filtered rapidly, and the filtrate was perfectly limpid. The color of the filtrate depends entirely on the quantity of lime used and the amount of boiling. The larger the excess of lime, and the longer the boiling continues, the darker will be the color, which may vary from a light, greenish yellow to a reddish brown. Likewise did the matter change which remained upon the filter; quickly separated, it was coherent; left for sometime in the alkaline solution, it changed to a slimy matter, rendering the juice unfit for filtration. This circumstance makes the utmost care necessary in working the juice on a large scale for technical purposes. The juice of the cane thus treated, formed, when a moderate quantity of lime had been

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used, after a proper degree of concentration, small crystals of sugar, lying in a more or less tinged syrup. When the fresh juice, however, was concentrated without the addition of quick lime, the final result was a dark red syrup, which even after months had passed, did not show the slightest tendency to separate crystals of sugar. The juice of the cane contains, if taken from the unripe plant, more or less starch, easily recognized by a solution of iodine in the slightly acid liquid. The facts so far obtained prove, according to the results ascertained by the application of the method of Trommer, that besides cane sugar no other kind of sugar existed in the juice of the ripe and sound Sorghum cane. Yet knowing very well that the whole importance of this fact would mainly depend on a favorable answer concerning the general nature of the juice, I tried to decide next what organic matters and what inorganic saline compounds accompany the cane sugar; of what nature and in what quantities they are present; whether they allow of an advantageous separation, and by what means the whole process of separation may be effected to the best advantage.

Saline Matters.—A quantitive analysis had informed me that the phosphoric acid in the sorghum cane juice was more than the alkaline earths required, I selected on that account a method recommended in such cases by Woehler, and proceeded in the following manner: Two hundred and forty grams of sorghum cane juice were evaporated and the organic matter thoroughly destroyed by a careful heating in a muffled stove. The black spongy residue was then pulverized, and divided into two equal parts, of which one part was extracted by means of hydrochloric acid, and the other by means of nitric acid; finally for the same purpose repeatedly boiled with distilled water; the hereby remaining carbonaceous mass was then heated in a platinum crucible till the combustion of the carbon was accomplished. A white ash was thus produced, which was again heated in the same way as the spongy coal. This process left the silica in its pure state, and brought the rest of the component parts into solution. The average of various analytical results yielded 0.0364 gm. silica, which is equal to 0.0015 per cent.

The question, if that quantity of silica ought to be considered as resulting from a soluble silicate of potash, as Casaseca believes to be the case, by a similar result in the juice of the real sugar cane (Saccharum officinarum,) or as merely originating from the

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silica of the incrusted cells, as I am disposed to believe, is difficult to decide. The solutions of the salts in hydrochloric and nitric acid, were analyzed with the precaution necessary, and in the first case only the various bases, in the latter, the various acids determined. The results average as follows:

0.219 phosphate of lime and magnesia, besides traces of iron.
0.310 alkaline carbonates, mostly potash.
0.069 sulphuric acid.
0.079 phosphoric acid.
0.065 chlorine.

0.742 grams.

This corresponds with 0.309 per cent of inorganic compounds, of which 0.13 per cent are to be counted as pure alkali; the trace of iron may be ascribed to the iron mill. The quantity of saline matter thus found, must quite naturally be less than the juice really contains, for the organic acids are represented here as carbonic acid. The quantity as well as the quality of the inorganic salts vary, as is known within a certain limit, in plants of the same species. Richly manured soil (stable manure) does not only cause an increase of salts in the plants, but effects even a substitution of elements of the same chemical group, within a certain limit. Such observations have been made, and what renders them particularly of interest here, in a cane sugar containing plant. Hochstetter found that the sugar beet contains in its juice according to the nature of the soil and the manner of manuring, at one time more potash, at another more soda, and that the quantity of those alkalies varies in different soils. The acknowledged fact that the soluble salts in various plants, increase on a richly manured soil, or on soil formed mainly by the crumbling of feldspathic and micaceous rocks, entitles me to suppose that the soil on which the plants for my observations were grown, must have suffered under these disadvantages. It is in regard to practical influence in the manufacture of sugar, of no consequence, whether potash or soda predominates, for both are alike injurious; they accompany the sugar through all the processes of refining; they interfere seriously with the crystalization of the sugar, and give a bad taste to the molasses. For that reason has a cautious farmer, in raising sugar plants, to select a soil, which is known to be poor in alkalies, or to treat the soil in a manner which will reduce them, when present, and to be par-

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ticularly careful in preventing the accumulation of soluble compounds of ammonia. The phosphates of lime and magnesia, in large quantities, are not obnoxious; they are generally little soluble in the juice, owe their increased solubility in cases like ours to the peculiarity of the juice, and are much more easily removed than the alkalies. In regard to the quantity of organic acids in the sorghum juice, I am unable to judge. The oxalic acid seems to be the predominating one, yet what kind of soil and probably climatical influence may increase its quantity I do not attempt to answer. It may here suffice to remark, that in the real sugarcane the relative quantities of organic acids are known to vary greatly at different periods of the season, and to differ in different localities.

Indifferent organic substances.—The indifferent organic compounds which we here treat of, are divided commonly by chemists into two distinct series, characterized in their members, by presence or absence of nitrogen. The one includes the oxydized and unoxydized carbohydrates and fats, as starch, sugar, pectin, &c.; the other the nitrogenous compounds, as legumin, albumen, &c. Many of the first and most of the second series, have thus far been studied with such unsatisfactory results, that although we are able to identify with facility many members of the first series when isolated, or in some cases even detect them in mixtures, yet it is an undeniable fact that there exist insurmountable obstacles to their exact quantitative separation. The members of the second series are characterized for instance, by indifference to most chemical tests and similarity in general properties, and chemists moreover are totally ignorant in regard to their essential chemical characters. Numerical results, which have been presented to us in connection with similar investigations, represent only the present state of our knowledge in this branch of chemical science, and are only of relative value. They only inform us of results obtained in similar cases by the application of the same imperfect analytical method, and their sole recommendation is often nothing but the acknowledged superior skill and circumspection of the experimenter. Exact calculations, which now and then have been based upon such detailed and specified analytical results, are in many cases more interesting and entertaining than true.

I have, in consequence of those facts, confined myself to the use of methods sanctioned hitherto in practical investigations of

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a similar character, and claim no other value for my statement, than I have endeavored to explain.

Besides the purely mechanical methods for separating various organic matters, settling, decanting or washing, as is recommended for the separation of starch, for instance, or fermentation, a much more exact method under suitable circumstances, as in the case of starch and sugar, the acetate of lead, alcohol and slaked lime, are applied generally in precipitating many of those indifferent organic compounds, with or without nitrogen. The precipitates thus produced in the juice of plants are generally mixtures of various compounds: they have been weighed either in their dried state as such, or have been subjected to further analytical treatment. Acetate of lead, and slaked lime particularly, answer here very well, in regard to the main question; they at least enable us to bring the sugar, which they leave in solution, under such conditions, that we can ascertain its kind and its quantity, with much certainty.

a. Precipitation with Alcohol.—Equal volumes of the sorghum cane juice and *absolute* alcohol were mixed, and after a thorough shaking, kept well covered and without further motion till the sediment did not further increase, and the liquid appeared limpid, which effect was produced generally in twenty-four hours. The solution filtered rapidly, and was of a clear light wine color; the residue on the filter was of a greenish color. Washed with a mixture of absolute alcohol and distilled water in equal parts, this residue retained its greenish hue, but when washed with pure absolute alcohol the chlorophyl was dissolved, its green solution passed through the filter and the residue became yellowish white.

One hundred and twenty grams of juice, treated in the described manner, left as an average in several experiments, a precipitate equal to 1.4980 grams, dried at 100° C., (=212° F.,) which consisted mainly of the slimy nitrogenous matter, with small quantities of phosphates and oxalates of magnesia and lime.

Being compelled to make all my observations at one period of the development of the plant, late in the season, I was not enabled to pay particular attention to the physiological character of the starch; it is not unlikely that the starch decreases in the same degree as the sugar increases, and that at an earlier period in the life of the sorghum, larger quantities of starch are to be

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found; this being the fact sorghum cane would fully resemble the real sugar cane, in which Payen found that the sugar originates from the starch.

The solution of this scientific problem would prove to be one of the most valuable discoveries of our day. Kirchhof enriched at the beginning of the present century the chemical industry by his great discovery of changing starch and cellulose of almost every description by artificial means into grape sugar.

Science has since pointed out several ways of accomplishing the same result. Scientific investigations have thus drawn the lines of relationship between starch and grape sugar, as well as between cane sugar and grape sugar, closer year by year, and it needs no prophetic eye to favor the idea, that in sight of the rapid progress of organic chemistry, the day might not be very far distant when we may have to register in our annals the manufacture of cane sugar by artificial means.

b. Precipitate with Acetate of Lead.—I added a solution of acetate of lead to one hundred and twenty grams of sorghum cane juice, till the precipitate did not further increase; an excess of the solution of acetate of lead caused a partial solution of the precipitate.

The precipitate thus produced weighed after being dried at 100 C. (=212° F.,) 3.5060 grams, which carefully burned, left 1.6960 grm. of oxyd of lead combined with the larger quantities of sulphuric acid, phosphoric acid and chlorine.

The organic matter, represented by the loss in burning equaled 1.81 gram, or 1.51 per cent.

In order to gain some idea of the nature of this organic matter I precipitated again two thousand grams of fresh juice, collected the precipitate upon a filter, and washed it once with cold distilled water; suspended it afterwards in cold distilled water, and treated it with washed hydrosulphuric acid gas, till an excess of gas was still perceptible after twenty-four hours rest. The solution obtained by the filtration and separation from the sulphuret of lead was colorless, and settled by boiling a small quantity of coagulated albuminous matter, it contained all the sulphuric acid, phosphoric and oxalic acid of the juice, besides a small quantity of another organic acid, which I according to the properties of its compound with lime believe to be tartaric acid. The quantity of this still questionable compound of lime was too small to ascertain its true chemical character by an elementary

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analysis. The sulphuret of lead gave when boiled with distilled water, an opalescent solution, which tested with iodine, proved to contain a small quantity of (starch?) cellulose, originally suspended in the juice. The sulphuret of lead thus extracted and heated with hydrate of lime evolved large quantities of ammonia, resulting from the insoluble albuminous matter retained by it. The collective name of albuminous matter is applied for various nitrogenous compounds, which are found generally in plants. They are usually in a large proportion soluble in the fresh juice, predominate more in the juices than in the stalks and leaves; they undergo, when removed from the vital action of the plant, a rapid change, and one of their best general characteristic properties is, that they coagulate at 65°–70° C. (=150°–160° F.) They present on account of their rapid change, great difficulty in ascertaining their true original character, and leave it thus in most cases, undecided whether we had originally only one member of the series, meeting in the course of the investigation the products of its decomposition and its changes, or several distinct members from the beginning. In sight of these disadvantages, it is not to be wondered at that the classification and nomenclature of these, although as a group, well characterized compounds, are still left more or less to the caprice of the chemist. It seems to be the best practice for the present to consider them as modifications of but one compound. Some chemists have exerted themselves in establishing in similar cases a formula, for the albuminous matter in plants. I have omitted following them here, believing that in cases where not only the analytical methods are defective, particularly in regard to a complete separation, but at the same time many facts prove that the product, we isolated, differs widely in its properties from the original compound we met with; that a formula will be of no advantage in enlarging our information. Confining myself exclusively to the practical side of the question, I ascertained the fact that the albuminous matter was less in the sorghum juice than in beet juice; that it does not interfere with the practicable separation of the sugar, and although its quantity may be small, it fully suffices to change under suitable circumstances all the sugar present into grape sugar, and finally into alcohol and carbonic acid. Mulder's observations have proved that one part of vegetable albuminous matter is sufficient for one hundred and twenty-five parts of sugar.

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Another class of compounds containing nitrogen and worthy to be mentioned here, embraces the salts of ammonia. They have no influence whatever upon the nature of the juice, its changes, etc.; they interfere mainly with the separation of sugar in the form of crystals, surpassing almost in that bad effect, the salts of the fixed alkalies, and on account of their strong saline taste they render the molasses entirely unfit for domestic use, when present in large quantity. The large amount of the salts of ammonia found in the molasses of beet sugar, cause mainly the unfitness of that kind of molasses for domestic use. The determination of the ammonia salts in the juice of plants requires some precautions. Albuminous matters produce by their decomposition ammonia; and strong alkalies, particularly when aided by an elevated temperature, greatly facilitate this decomposition. It is therefore necessary to employ the fresh juice and to liberate the ammonia at the ordinary atmospheric temperature by a suitable alkali. I proceeded in the following manner: I filled a common glass flask with a quantity of fresh juice, attached on one side a hydrogen gas generator, on the other a Liebig's glass apparatus, commonly used for the absorption of carbonic acid; filling it up to a suitable height with dilute hydrochloric acid, and then sending during twenty-four hours, slowly but constantly, washed hydrogen gas through the main flask, with the intent to carry the freed ammonia into the hydrochloric acid. The hydrochloric acid tested afterwards by chloride of platinum, proved to be free from ammonia. The fresh sorghum cane juice, is therefore free from compounds of ammonia. Should they be observed during the process of making sugar, we may know that they are either brought into the solutions as such by carelessness, or originated from the decomposition of albuminous matter, left in the juice by imperfect clarification.

c. Precipitate with Lime.—Caustic lime has a decided effect upon a number of organic and inorganic compounds, which have generally been found in the juice of plants. Added in a small excess it precipitates at the boiling point, starch and pectin entirely, and arabin, bassorin, and the albuminous matter, in large proportion; it forms almost insoluble basic compounds with phosphoric acid and some of the common organic acids: removing consequently numerous compounds, which the sugar bearing juice usually contains. Slaked lime, or when operating

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on a small scale, lime-water, has been frequently used in precipitating those compounds alluded to.

The juice of the beet root, and of the real sugar cane, have also been subjected to this method for the purpose of obtaining quantitive results, and getting thus insight in regard to their condition. That this method, as a quantitive one, suffers more by inaccuracy than any other spoken of before, will be seen by the following statement. The fact that slaked lime is soluble in large proportions, in a solution of cane sugar, producing thus a strong alkaline liquid, which will more or less intensively affect, destroy and finally dissolve various organic compounds, renders its proper use very difficult, leaving it almost entirely to the practice of the analyst to obtain corresponding results; not speaking of the increased solubility of the phosphate of lime and magnesia by the presence of sugar, etc., still the great and well deserved importance attached to the effect of caustic lime in the manufacture of cane sugar in general, requires here undoubtedly a few remarks on the method itself, and the results obtained by its application.

We have very few instances in technical chemistry in which a simple process, aided by skill and experience, has produced as valuable results as the application of caustic lime to the clarification of saccharine juices. Well may it be said that when Payen pointed out the effect of caustic lime, an important branch of industry, the manufacture of beet sugar, received its most powerful impulse, and that thereby was opened a new channel for agricultural and manufacturing industry.

I shall take the opportunity hereafter to call the attention of my readers again to a more detailed explanation of the subject here under consideration, and for the present confine myself to a brief statement of my results. I heated in a suitable vessel fifteen hundred grams of Sorghum juice, to 60 deg.—70 deg. C., (=140 deg.—158 deg. F.,) added in small quantities dilute milk of lime, till a slight alkaline reaction remained; increased then the temperature gradually but rapidly to the boiling point of the mixture, which proceeding, if properly executed, resulted in the throwing of a thick bulky coagulum to the surface of the liquid, changing the latter into a limpid solution of a light, yellow color, similar to old Rhine wine. The scum soon sinks to the bottom; separated by a filter, once washed and dried at 110 deg. C., (=230 deg. F.,) it weighed 28,810 grams.

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The organic matter, carefully destroyed by heating, left 7,699 grams carbonate of lime, including small quantities of phosphate and sulphate of lime; the loss was 21.111 grams, which corresponds to 1.40 per cent., mainly organic matter, and 0.52 inorganic residuum, composed principally of the lime added, and the carbonic acid resulting from the combustion of the organic matter.

The color of the filtrate (from the precipitate with lime) has been considered the best criterion for a successful operation; if it is greenish yellow or a little opalescent, we may expect soon a new separation of a slimy, bulky matter, and the quantity of lime used or the given time for its effect, or the temperature applied has not sufficed to produce the desired result. Is the filtered solution, on the contrary, dark yellow, or has it a reddish brown tint, we are taught that either the excess of lime has been too great, or that the temperature has been either too high or too long continued. In both cases a portion of the organic matter which should be precipitated will be left in solution.

A little practice, with some attention, soon teaches one how to obtain corresponding results.

I did not pay further attention to the ascertaining of exact corresponding results, they varied within small limits. I felt satisfied that lime would have its beneficial influence, so far as to precipitate the injurious matters present as completely here as in other similar cases, and would therefore render the separation of sugar practicable.

The quality of these organic substances is undoubtedly of far more practical importance than the quantity. For large quantities of matter, which we can easily separate by lime, are less objectionable than small quantities of those which we are not able to remove; taking for granted both have a like injurious effect upon the juice.

Determination of the Quality and the Quantity of Sugar.

Sugar is a generic term, which was formerly applied to all sweet substances, as, for instance, "sugar of lead."

Its use is at present limited almost exclusively to three well characterized organic compounds, which resemble each other not only in their remarkable sweet taste, but also in their ability to form alcohol and carbonic acid, under the influence of a ferment.

Milk sugar occurs in milk, and being peculiar to animal life does not require discussion here. Grape sugar occurs in large

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quantity in the grape and most of our ripe fruits, it is sometimes called fruit sugar. This is the kind of sugar into which starch and cane sugar are transformed before they are capable of undergoing alcoholic fermentation. It is moreover the only kind of sugar we are able to produce artificially, for technical purposes, from starch and all the varieties of cellulose or vegetable fiber. Its applications are numerous, and its importance in the arts very great. Its intimate relation to cane sugar makes it of considerable importance in connection with the subject of this article.

The third kind of sugar was originally found in large quantities in various gramineous plants, particularly in the juice of the cane of Saccharum Officinarum, Linnaeus, and is called cane sugar. The occurrence of the cane sugar in any considerable quantity, seems to be limited to a few plants—some graminean palms, the maple and beet, most of which, on account of the sugar, have been more or less extensively introduced into the agricultural industry of the various sections of the earth. In describing the general properties of the Sorghum cane juice, I have already mentioned that the results which I obtained by the application of the method of Trommer, entitled me to believe that cane sugar is the only kind of sugar that exists in that juice. Trommer's method of distinguishing cane sugar from grape sugar, in the juice of plants, has been approved by Pelouze in his valuable investigation of the juice of the beet root. Its reliability is now generally acknowledged, and the conclusions drawn from its results are only modified by the progress of experience so far as to prove that the method is more precise and reliable in deciding the absence of the grape sugar than in affirming its presence.

We know that cane sugar does not reduce the oxyde of copper in alkaline solutions at the ordinary temperature, while grape sugar, under the same circumstances, invariably reduces it more or less to a red suboxide. Various other substances have been shown, however, to produce a like effect.

The quantity of cane sugar is ascertained by various methods, which may be divided into two classes: The first class including the direct methods in which the cane sugar is separated in crystals; the second class including the indirect methods in which the sugar is not separated, its quantity being estimated either from the weight of the products of its decomposition, or from optical effects produced by the solution containing it.

The various direct methods are more or less wanting in exact-

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ness, yet properly modified and carefully executed, they are of particular practical importance; their results show at least to the manufacturer that the quantity obtained by the test is really in a suitable state for separation.

In the examination of real sugarcane, Pegne, Pelouze, Casaseca, and others have successfully applied these methods. They usually either extracted the carefully dried cane with alcohol, or evaporated the clarified juice. The latter method is undoubtedly preferable. Extracting the dried plant with alcohol is certainly a less objectionable method when applied to the pure cane than when applied to the beet root, particularly when in the latter case the residue obtained on evaporating the alcohol is weighed as cane sugar. Such a method is an outrage on science, though supported by high authority. The alcoholic extract of beet roots, weighed as pure cane sugar, is inferior to common raw sugar; the results varying, according to the observations of Peligot and of myself, to the extent of six or eight per cent. Exact science cannot employ such a method, and the manufacturer who depended upon it would be ruined.

Several indirect methods have been recommended for the determination of cane sugar.

Biot noticed that cane sugar and grape sugar could be distinguished from each other by polarized light, and employed a polariscope for this purpose. Biot's observations were confirmed and enlarged by Mitscherlich, Ventzke, Dubrunfaut and others, who adapted the method to practical operations. They arranged scales for different degrees of concentration, and recommended the polariscope to the sugar manufacturers. Many are the advantages which organic chemistry has since derived from the use of the polariscope, but its value in estimating the different varieties of sugar has diminished year by year. Experience has shown that certain bases and acids, and even changes of temperature, seriously affect the optical properties of organic compounds. Numerous other compounds are found to exert the same influence on polarized light as sugar, and what is of most importance, such bodies sometimes accompany the sugar in the fresh juice or are the products of changes which the syrup is liable to undergo.

These circumstances have greatly diminished confidence in the polariscope, and render great caution necessary in its use. That such would be the result of experience, was predicted by Berzelius when it was first introduced.

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Other indirect methods for determining cane sugar are based upon the action of certain chemical agents. The method of Barreswil and Fehling is entitled to much credit, being based upon Trommer's observation that grape sugar reduces protoxide of copper, to suboxide in an alkaline solution. Barreswil proposed to change the cane sugar to grape sugar by means of an acid, to neutralize the acid, to treat with an alkaline solution of sulphate of copper and tartrate of potassa, and to calculate the weight of the cane sugar from the weight of the reduced suboxide of copper. Fehling improved the method by using a copper solution of known strength, and calculating the amount of sugar from the amount of copper solution employed. Experience soon enables the analyst to obtain corresponding results. There are different opinions with regard to the exact proportion between sugar and suboxide of copper, but they do not materially affect the results. When cane sugar and grape sugar occur together, two tests are necessary to determine the proportions of both—the grape sugar actually present is first determined as above; then, in another portion of the solution, the cane sugar is changed by an acid to grape sugar, the whole amount of which is determined. The difference in the results of the two determinations represents the grape sugar derived from the cane sugar, and its equivalent in cane sugar is ascertained by calculation.

Equal, if not superior, is a method in which the amount of sugar is calculated from the results of its fermentation, either alcohol or carbonic acid. It is merely necessary, first, to change the cane sugar to grape sugar, and then to attend carefully to the conditions which insure a good fermentation. The probable alkaline reaction of the liquid must be corrected, and carbonate of lime, if present, must be decomposed, as it is liable to cause slimy fermentation, producing lactic acid, instead of alcohol. Both these points are attained by the addition of a little bitartrate of potassa or tartaric acid, which, according to H. Rose, insure exact results. A proper temperature, 25° to 30° C. (=77° to 86° F.,) and the proper degree of concentration are also essential.

Pelouze determined the quantity of sugar in the beet root by fermenting the juice and ascertaining the quantity of alcohol in the same manner that Gay Lussac determined the alcohol in various wines. The amount of alcohol was reduced to grape sugar and then to cane sugar.

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Zennek, in his investigations, determined the sugar from the amount of carbonic acid liberated during the fermentation.

There is another method, which is in fact the only one in which cane sugar is weighed as such, in combination, by which a compound of sugar and caustic lime is separated. The use of this method is recommended by many chemists and sugar refiners, and I shall have occasion by and by to refer to it again. In my examination of the juice of the sorghum, I have employed both the direct separation of sugar in its most characteristic form of crystals, and have also resorted to the fermentation test, thereby obtaining practical results upon which the manufacturer can depend, as well as the exact percentage of sugar present in the juice.

I placed 1440 grammes of fresh juice in a glass flask, heated it carefully to 70°–75° C. (158°–167° F.) added carefully dilute slaked lime, till a slight alkaline reaction prevailed, then increased the temperature rapidly to the boiling point and filtered immediately. The precipitate left upon the filter formed a comparatively consistent bulky green coagulum, which, on being twice washed, lost all its sweetness. The entire filtrate, of an alkaline reaction, was rapidly concentrated to 12°–15° Baume, decolorized by animal charcoal, and finally evaporated over steam to a syrup of 34°–35° Baume. On suffering the syrup to stand for forty-eight hours, a crop of crystals was obtained; these were separated, and washed with eighty per cent alcohol—the washings being added to the syrup, which was then again concentrated to 38°–40° Baume, and mixed with alcohol, the sugar crystals obtained were washed as above, and added to those of the first crop. The washings and syrup were mixed and evaporated, and yielded 66.22 grammes light yellow molasses, which was found, by the fermentation test, to be equivalent to 16.78 grammes cane sugar. The crystals of cane sugar separated, weighed 120 grammes. The sugar of the molasses, and in the form of crystals, amount to 9.95 per cent of the juice employed. The fermentation was conducted in a little flask, such as is employed in carbonic acid determinations generally. 6.27 grammes molasses were placed in the flask, diluted with fifteen to twenty parts of water, a small quantity of good yeast added. The mouth of the flask was then closed with a cork bearing two different tubes; one of these was slender and extended to the bottom of the flask, the outer end being closed by a plug of beeswax; the other tube was larger, merely entered the flask, and was filled with chloride of

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calcium to absorb and retain the moisture of the escaping carbonic acid. The flask and its contents were then exposed to a temperature of 25°–30° C., (77°–86° F.) as long as fermentation continued. The beeswax plug was then removed and the carbonic acid still remaining in the tube sucked out through the tube containing the chloride of calcium. The decrease of the whole in weight represented the carbonic acid which escaped and was 0.819 grammes: Cane sugar, C_{12} H_{11} O_{11}, under the influence of yeast, first unites with the elements of one equivalent of water and becomes grape sugar, C_{12} H_{12} O_{12}. By the act of fermentation the grape sugar is transformed into four equivalents of carbonic acid, 4 CO_2, and two equivalents of alcohol, 2 C_4 H_6 O_2. Expressed in weights, 180 parts of grape sugar form 88 parts of carbonic acid and 92 of alcohol. Accordingly 0.819 grammes of carbonic acid require for their formation 1.675 grammes of dry grape sugar or 1.59 grammes of crystallized cane sugar. The 66.22 grammes of molasses contained therefore 16.78 grammes of cane sugar. Of course a small proportion of the cane sugar in the molasses is unavoidably converted into grape sugar during the process of extracting the crystals. The molasses obtained from sorghum juice after removing the crystallized sugar is fully equal to the best sugar-house molasses. It tastes agreeably sweet without any unpleasant after taste, which is far from true of beet-root molasses. The good quality of the sorghum molasses is of great importance here, for the United States far surpass every other country in the consumption of molasses.

The above results have been repeatedly confirmed by other tests on a smaller scale. While I was occupied with my examination of the sorghum cane, Mr. J. S. Lovering of Philadelphia, a sugar refiner of high reputation, was engaged on experiments with a view to test the practicability of manufacturing sugar from sorghum. The results of his experiments have since been embodied in a pamphlet. Operating on a large scale and under very favorable circumstances, he was according to his report very successful. His results calculated upon one acre, with 18,277 stalks, equal 1221.85 lbs. sugar, and 74.39 gallons of molasses. His best results were obtained during the first week of November, 1857. Besides determining the cane sugar in the sorghum juice I endeavored to determine it in the dried cane itself. One pound of the fresh cane was cut into thin slices, carefully dried, and extracted with 70 per cent alcohol. I pur-

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sued exactly the same method which Peligot and Casaseca successfully employed in their examination of the real sugar cane. The alcoholic extract on careful evaporation yielded a yellowish red and agreeably sweet syrup, which deposited no crystals of sugar after weeks of standing. Raspail and Fabroni observed that in all plants which contain cane or grape sugar in any quantity there are peculiar cells which contain the sugar. These cells protect the sugar from the action of the juice during a certain period of the vegetation, and also after careful drying of the plant. As soon however as these cells begin to decay or are mechanically destroyed the sugar begins to be transformed into carbonic acid and alcohol, the latter afterwards changing to acetic acid. Moisture, access of air, and the juices of the plant, aided by a favorable temperature cause the decomposition of the sugar. The juices of plants contain more or less nitrogenous matter which acts upon the sugar, particularly in the presence of several common vegetable acids, as tartaric, etc., hastening as Rose, Rousseau and Thenard observed their fermentation. It is a well known fact that an unhurt and carefully dried grape will retain its sugar unchanged till the skin and cells are destroyed either by some mechanical influence or after lapse of time by decay. The contents of the various cells coming in contact with each other, and moisture gaining access to them, decomposition of the sugar ensues, giving rise to carbonic acid and alcohol, then to acetic acid and finally resulting in the putrefaction of the whole fruit. The same is the case with real sugar cane and to a certain extent with sorghum cane and the beet root. Sudden change of temperature is the most efficient destroyer of the system of cells, and the effects of an unexpected frost in countries where sugar cane is raised, as Louisiana, or the penetrating of the winter frost into the ill-covered beet-root deposits, silos, confirm this theory most seriously. Speedy consumption of the sugar plants so affected, before the approach of warmer days, will alone prevent their rapid destruction. I had an opportunity to observe that the temperature which destroys Dahlia pinnata, Cav. (Georgiana variabilis, Wild,) also destroys the sorghum plant. Sugar bearing plants, as the sugar cane, beet, and sorghum, are after having been frozen fit only for the manufacture of molasses and alcohol.

Dried sorghum cane is as my experience proves unfit for the manufacture of cane sugar; dried beet root gave the same dis-

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couraging results, and their employment has been maintained for several years only at great sacrifices. Even the project of carrying the dried colonial sugar cane to Europe and working it there under more favorable climatical influences, by the aid of greater skill, has been abandoned. Though Peligot and Cassaseca, contrary to practice, found that dried sugar cane contained only cane sugar, it may be urged that results obtained on a small scale by experienced and skillful hands are not always confirmed by practical operations on a large scale.

B. The Cane.

The cane used was cut off four or five inches above the root and freed from the leaves, and the top piece three or four feet in length including the seed ear. 2,108 grammes of the rind separated from the spongy interior lost at a temperature of 100°—110° C. (212°–230° F.,) 1.178 grammes of moisture, equivalent to 55.88 per cent. 5,143 grammes of the soft interior lost under the same circumstances 4,375 grammes, equal to 85.06 per cent., and 33,012 grammes of the fresh cane lost 26.06 grammes, equal to 78.94 per cent, The moisture of the interior soft substance is to that of the rind as 17 to 11. 180 grammes of fresh cane were exhausted by repeated boiling, and the solution obtained evaporated to dryness and exposed to a temperature of 100°–110° C. (212°–230° F.,) the residue weighed 18,407 grammes, equal to 10.22 per cent. 9,733 fresh cane left by its combustion 0.0722 grammes of ashes, equal to 0.71 per cent. The ash thus obtained had an alkaline reaction, evolved considerable carbonic acid on the addition of an acid, and contained phosphates of lime and magnesia, with an excess of magnesia, soda and potash in combination with chlorine and carbonic acid. By treatment with a mineral acid a small quantity of silica was separated. As usual the alkaline earths predominate; they were probably originally combined to a large extent with organic acids. The phosphoric acid was probably mainly combined with the alkalies, the potassa exceeding the soda in quantity. It is very probable that the larger part of the alkaline and earthy compounds are mainly due to the peculiar nature of the soil. A feldspathic soil, enriched by carbonate of lime and stable manure presents all the conditions necessary to render soluble a large quantity of alkalies; and the formation of ammonia compounds is favored by the decomposition and decay of animal and vegetable matter in the presence of carbonate of lime. It would

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seem as though the circumstances usually favorable to a crop would prove injurious to the sorghum cane; though this supposition has not yet been confirmed by observation. I base this opinion on the analogous case mentioned by Hochstetter, who found the saline matter of the beet root to vary greatly, both in quality and quantity, the variations being due mainly to the soil and the manures. As soluble compounds of potash, soda and ammonia interfere seriously with the separation of crystallized sugar further observations on this point would be very desirable.

12,406 grammes of fresh sorghum cane were successively extracted with boiling water, carbonate of soda solution, dilute hydrochloric acid, and finally with a mixture of 90 per cent alcohol and ether. 1.06 grammes of dried residue, cellulose, remained, equal to 8.54 per cent. 5,056 grammes of dried cane lost 0.107 per cent, when extracted with absolute ether. Considering 5,056 grammes dry cane equal to 26.19 grammes of fresh cane, the loss would be equivalent to 0.408 per cent in the fresh cane, and consists of wax. This wax, probably cerosine, penetrates particularly the rind or exterior layer of the cane, and is more or less distinctly visible as an exudation which covers the cane near the joints, as well as the inside basis of the leaves, and increasing in quantity as the season advances it causes the smoke-like bluish tint of the whole field. It is evidently very unequally distributed on the plant; the cane selected for my analysis showed no visible exudation of the wax; one-half per cent might therefore represent its average quantity.

I have already mentioned that a single cane freed from leaves, roots, and top piece, weighs from 1½ to 2½ lbs., though heavier plants frequently occur. Three plants weighed together, including roots, leaves, and seed ears, 17 lbs., the same plants without the seed ears 13 lbs, without seed ears and roots 9 lbs., and on finally removing the leaves 8 lbs.

According to my examination the fresh sorghum cane consists of

Water	78.94	
Soluble matter	10.22	of which 9.–9.5 are cane sugar.
Cellulose	8.20	
Cerosine and insoluble earthy compounds	1.24	
Albuminous matter, etc.	1.40	
	100.00	

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The following analyses are interesting for comparison:

Beet-root Juice—Payen.

Water	83.5
Cane sugar	10.5
Cellulose	0.8
Albumen, &c.	1.5
Fat acids, saline matter and ash	3.7
	100.00

Sugarcane Juice—Peligot and Dugeny.

Water	77.2
Cane sugar	20.9
Inorganic compounds	1.7
Organic compounds	0.2
	100.00

C. The Leaves.

The leaves are of a bright green color during the period of growth, and assume in autumn a bluish green tint. One hundred pounds of fresh leaves taken from the mature plants, lost when perfectly dried 27 per cent. of moisture, and in this state constitute good food for cattle, equivalent to 80 or 85 pounds of ordinary hay.

One hundred grammes of fresh leaves left 2.07 grammes of a white ash, consisting mainly of lime, magnesia and silica. Thirty-four and a half pounds of fresh cane, freed from the roots and seed ears, averaged five pounds of fresh leaves; taking the average weight of a single cane at two pounds, a pound of leaves would be furnished by seven canes. The taste of the leaves is herbaceous, they contain no sugar, and are readily eaten by cattle and horses.

D. The Seed-ears.

The seed-ear of the sorghum is in the form of a panicle, which during the blooming period is yellowish green, changing afterwards to yellow; while the glumes or seed-leaves change during the ripening from yellow to red, and finally to reddish violet. The red coloring matter of the seed-leaves appears to be constant and durable, and has been repeatedly recommended as a dye. It is soluble in alcohol and ether, and almost insoluble in water and

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dilute acids. Dilute carbonate of soda dissolves it to a dark violet blue solution, from which acids precipitate a bright red dye.

The seed itself is yellow, of the size of shelled barley, and produces a yellowish white flower. It contains considerable starch and fat, and forms, when boiled with ten or fifteen parts of water, a starch-like pap. The fat is readily extracted by ether. From fifty or sixty grammes of ground seed I obtained several grammes of fatty acid, by extracting with ether, evaporating the etherial solution to dryness, saponifying the fat with an alkali, and decomposing the soap with a mineral acid.

Six seed leaves gave nine ounces of seed. One seed ear weighs usually, when ripe, from ninety to ninety-five grammes, or about three ounces. The sorghum will undoubtedly rank among our most valuable cereals for feeding cattle.

II. Valuation of the Chinese Sugar Cane for Agricultural and Industrial Purposes.

In the former publication of these investigations my estimates were based upon the supposition that 24,000 stalks would be the average of an acre. This was the result of experience on the part of persons entitled to my confidence, but others have considered an average crop as only 18,000 stalks per acre. Below are given estimates on both suppositions; the single stalk freed from roots, leaves and top piece weighing two pounds.

At 24,000 stalks per acre, the yield would be:

Dry seed	190 lbs.	
Dry leaves	5,900 "	
Fresh cane	48,000 "	which would produce
Juice	33,600 "	and
Moist bagasse	14,400 "	

At 18,000 stalks per acre:

Dry seed	142 lbs.	
Dry leaves	4,425 "	
Fresh cane	36,000 "	which would produce
Juice	25,200 "	and
Moist bagasse	10,800 "	

The cane sugar in 33,600 lbs. juice at 9–9½ per cent, would amount to from 3,000 to 3,190 lbs., and in 25,200 lbs. juice to 2,268 to 2,384 lbs. J. S. Lovering actually obtained per acre from 1,221.85 lbs. of sugar and 74.39 gallons of molasses, to 1,466.22 lbs. sugar and 74.39 gallons of molasses at 18,000 stalks per acre.

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These results are very encouraging as they show that more than half the sugar, or 5 per cent out of 9 to 9½ per cent in the juice, can be separated. When Archard established the first beet-sugar manufactory in Silesia, he was able to separate only from 3 to 4 per cent of sugar, although 10½ per cent were present; and the French manufacturers were quite contented when they succeeded in extracting from 4 to 5 per cent of sugar, till Pelouze, Payen and others proved to them that they were still leaving more than half the sugar in an unpalatable molasses. The history of the development of the manufacture of beet sugar may be studied with great advantage by those interested in the sorghum. The rapid development of a rational system of agriculture in Europe, is undoubtedly due in great part to the exertions of the chemists and the observing farmers to make the beet root the staple sugar plant for the country. It may be remarked that the practical success of the sorghum cultivation does not depend upon the quantity of crystallized sugar that may be manufactured from it; even the manufacturer of palatable molasses, or the fermentation of an inferior molasses will make it a profitable crop.

The Manufacture of Alcohol.

Three thousand pounds of cane sugar are equivalent to 3,158 lbs. of grape sugar, and as 180 lbs. grape sugar produce 92 lbs. of absolute alcohol, will yield 1,614 lbs. of absolute alcohol or 1,782 lbs. or 260 gallons of 90 per cent alcohol of 0.8228 specific gravity. Supposing the yield to be only 18,000 stalks per acre, the 2,300 lbs. of cane sugar would be equivalent to 1,030 lbs. of 90 per cent alcohol or 150 gallons. How near it will be possible to approach these figures in actual practice will depend mainly on the skill of the manufacturer. Waste is unavoidable, but it is an acknowledged fact in most technical operations that better results as to quantity can be obtained on a large than on a small scale.

Other valuable products of the Sorghum.

The value of the leaves for feeding cattle has been already alluded to. It remains for me to call attention to the bagasse. The fibre of the sorghum is strong and very flexible, differing in the latter peculiarity from the fibre of our common grains, even from that of Indian corn. Hypochlorites readily remove its color without injuring its flexibility. Its fitness for the manufacture of paper has been repeatedly tested with encouraging results.

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My own experiments, in which after extracting the bagasse with various chemicals and decolorizing with hypochlorite of soda, I obtained a colorless pulp suitable for making a superior quality of paper, without injuring the fibre, confirm the numerous statements of others.

In my analysis I obtained 8.2 per cent of very pure cellulose or fibre, the manufacturer would probably obtain more, as he could not afford to purify it as completely as was done in my analysis. A pound of this prepared fibre is worth for the manufacture of paper from three to four cents. The increased consumption of paper has for years obliged the manufacturer to resort to new sources for the supply of vegetable fibre, and no plant promises so abundant a supply of a superior material as the sorghum. The United States surpasses all other countries in its consumption of printing paper, and has quite recently imported several million dollars worth of material for its manufacture. If this money could be put into the hands of enterprising farmers here, much could be done to encourage improvements in our system of general agriculture.

National economy teaches us that the independence, welfare, and prosperity of a nation are mainly secured by producing within its own limits the requisites for supplying its indispensible daily wants. Sugar has become a necessary article of daily consumption, and a larger quantity per head is consumed in the United States than in any other country. It is estimated that on an average thirty pounds are annually consumed by every individual in this country, or nine hundred millions of pounds by the thirty millions of inhabitants. A low estimate of six cents per pound for raw sugar shows that fifty-four million dollars are annually invested in the raw article.* Placing the production of maple sugar in the Northern states at sixty-five or seventy million pounds, and of cane sugar in the Southern states at from two hundred to two hundred and fifty million pounds, there remains five hundred and eighty million pounds to be imported from abroad; which at six cents per pound costs the country annually thirty-four or five million dollars. Estimating the quantity of molasses imported at fifteen or sixteen million of gallons we have probably five million of dollars more to send

* This estimate was made for the year 1857; since then an import duty of from two to three cents per pound has been levied on foreign raw sugar, which is an important inducement to home production.

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abroad annually; making the total cost of our foreign supply of this article for sweetening life at least forty million of dollars. As the production of sugar in our Southern states has for several years been on the decline, and as the production of maple sugar must decrease as the country becomes more thickly peopled, we cannot too strongly urge upon our farmers the importance of entering at once this new channel of agricultural wealth and national prosperity.

The farmer whose husbandry is carried on in a small scale cannot expect to reap the full advantage offered by the cultivation of the sorghum. Wherever professional skill is required in working an article and in arranging and superintending the necessary machinery a large establishment aided by considerable capital is always most successful. The farmer may manufacture good molasses in a small way, but the manufacture of sugar will be most prosperous when conducted on the large scale, or the principle of the beet sugar manufacture or plantation system. The United States contain an abundance of area favored by indispensable climatic advantages and means of transportation, and in no country is the skill required in such a branch of industry more generally diffused. Many of the inhabitants are familiar with the raising of the sugar cane, and the good lessons taught by beet-sugar cultivation of Europe, accessible through our immigrants, would undoubtedly aid in securing after a short time, the successful management of the sorghum. The Middle, Western, and undoubtedly some of those Southern states now struggling to keep up their plantations of sugar cane, against disadvantages of climate, would gain in a few years a very reliable and valuable branch of agricultural industry. The real sugar cane prospers only where a moderately tropical sun and a mild winter favor its growth throughout the entire year. The islands and moderately elevated sea shores within the tropics are the congenial districts where upon a calcareous clayey soil its luxuriant stalks reach their highest development. Experience has shown that its successful cultivation is confined to very narrow geographical limits. The beet root flourishes in more northern climates, and when transplanted to southern districts failed entirely. The sorghum seems to occupy the middle ground between these two plants.

As I before mentioned J. S. Lovering obtained in practice 7 to 8 per cent of sugar without estimating the amount left in the

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molasses, I found from 9 to 9½ per cent in the juice, and Mr. Wray, an Englishman, who examined several species of sorghum at Cape Natal, on the southeasatern coast of Africa, found the percentage almost equal to that of the real sugar cane, 18 per cent. I mention these facts to show what may be expected when the sorghum shall have received the attention of our farmers, and have become acclimatized on a suitable soil. The transplantation of a plant to a new and perhaps less congenial climate and soil invariably exerts at first an injurious influence on the vital principle and its products. When the beet root was first cultivated for the manufacture of sugar, it contained only 7 to 8 per cent of sugar, but by the application of proper care to the cultivation and to selecting the best specimens for seed the percentage was increased to from 11 to 12 in some species. Should it be possible to increase the percentage of sugar in the sorghum in the same ratio, its successful cultivation would become an accomplished fact; and our farmers, aided by their superior skill, more perfect machinery, and many other advantages afforded by this country, would be able to compete successfully with the planters of the West Indies.

SYRACUSE, N. Y., Feb. 1862.

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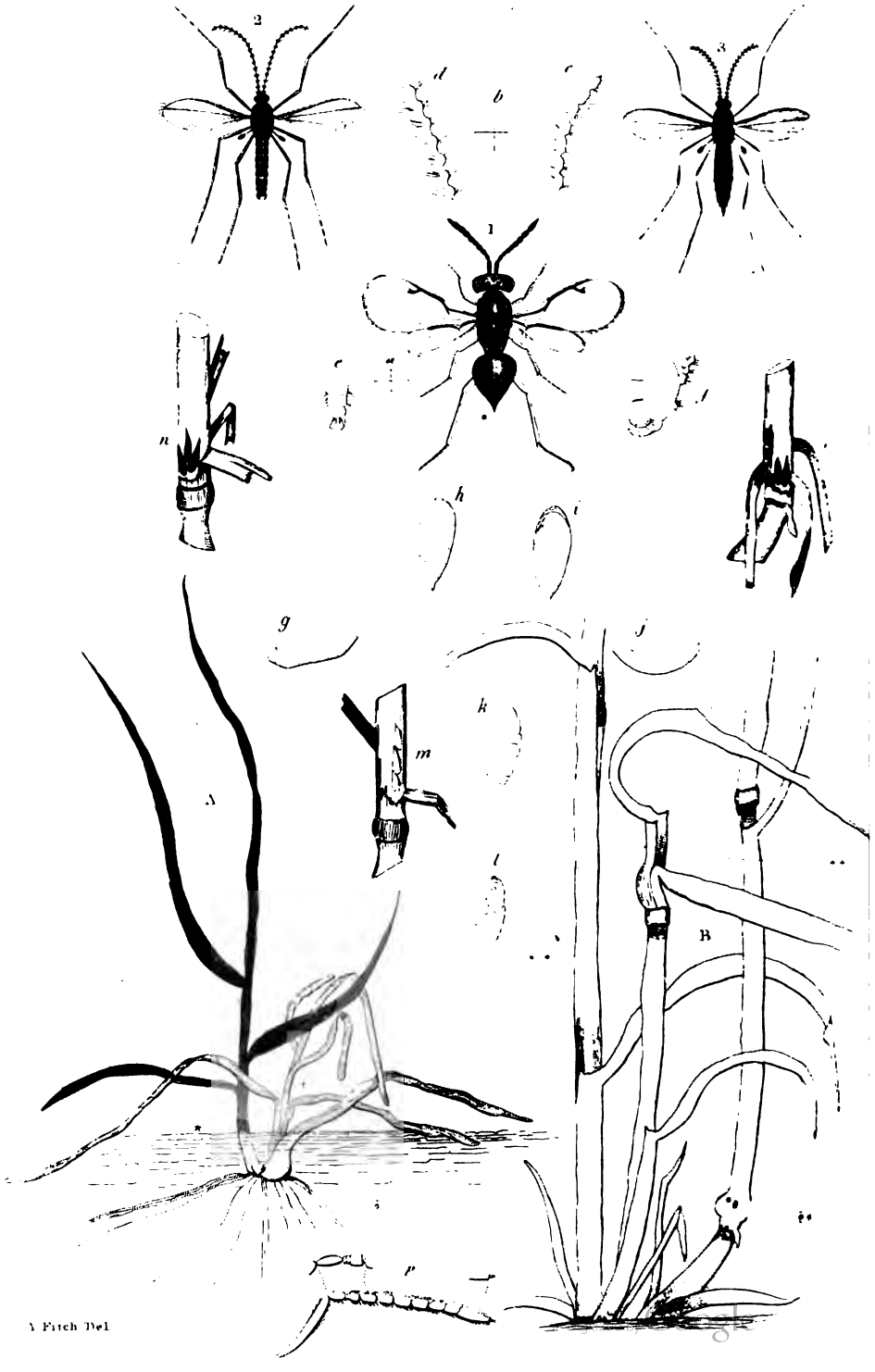
INSECTS—PLATE 3.

Hessian Fly



SEVENTH REPORT

ON THE

NOXIOUS AND OTHER INSECTS

OF THE

STATE OF NEW YORK.

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INSECTS INFESTING GRAIN CROPS.

(CONTINUED.)

6. ANGOUMOIS MOTH, *Butalis cerealella*, Olivier. (Lepidoptera. Tineidæ.) Plate 1, fig. 2.

In the bins of granaries and storehouses, in particular kernels of the grain, a smooth white worm which consumes all the flour inside of the kernel without injuring the external shell; passing its pupa state in the kernel, and coming abroad in May and again in November; a tawny dull yellowish gray moth having its fore wings commonly sprinkled with a few black dots, its width half an inch across its spread wings.

This insect, one of the most destructive to wheat, barley, oats and Indian corn, in France, was long ago introduced into the southern United States, where it has become fully naturalized. From thence it is frequently brought into New York in cargoes of grain, but our climate appears to be too cold for it here to thrive and establish itself.

In the museum of the State Agricultural Society, this moth made its appearance ten years ago, in the specimens of wheat preserved in glass bottles, multiplying itself in every bottle in which it occurred, until the contents were ruined. As these bottles were usually well stopped with cork and some of them also sealed with wax, it was a mystery how this insect gained an entrance to one after another of them, as it appeared to.

The description of this moth in its different states which I here present, was drawn up from the examinations made at that time. The account which I give of its habits and economy and

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ANGOUMOIS MOTH. INTRODUCED HERE FROM EUROPE. ITS HABITS.

the measures for destroying it, is compiled from Reaumur, Curtis, and other writers.

The female moth lays 20 or 30 eggs in a cluster upon a single kernel of grain, and this operation is performed in the field before the grain is fully ripened, as well as in the bins of the granary. The eggs are of a bright orange red color, and are placed in a line or in little oblong masses in the longitudinal channel upon one side of the kernel. The worms hatch in a week after the eggs are laid, or sometimes, if the weather be moist and warm, in four days. When they come from the eggs they are very minute, being scarcely as thick as a hair. The first worm which hatches penetrates into the kernel on which the cluster is placed, entering it in a little spot between the beard and the appendage of the sheath, this being the point where the kernel is most tender. The hole it bores is so minute as to be imperceptible to the eye. This first born worm having taken possession of this kernel, its younger brothers and sisters, as they come out of the shell, are obliged to wander off to seek other grains; and when they find them unoccupied, they pierce and enter them in the same way, so that each kernel of the grain contains but one occupant; and this kernel is sufficient to support the larva until it arrives at maturity, when it changes to a pupa within the grain, having entirely consumed the farina, although to the eye the grain appears sound and uninjured. If, however, it be taken between the fingers and gently pressed, it is found to be soft; and from the feeling, an experienced person can discover whether the kernel contains a young larva, in the early part of its operations, or a pupa, that has consumed the whole of the flour inside of the grain. By washing the grain, also, that which is injured is readily detected, by its floating on the surface of the water.

A grain of wheat or of barley contains the exact quantity of food that is necessary to nourish and support this worm from its birth until its transformation to a pupa. If a grain containing a worm be opened when the insect is near its change, one sees there is nothing more than the skin remaining, all the farinaceous substance within having been eaten. The cavity contains, in addition to the larva, some little brown or yellow grains, which are its excrement. And as these grains are found to be fewer in number and less in bulk with the old than with the young worms,

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it is supposed they eat these castings once or twice, as there is no aperture by which they can be thrust out of the cavity.

Having consumed all the flour in the grain, and completed its growth, the larva spins a white silken cocoon, which lines one end of the cavity within the grain, the other end being occupied with the castings of the worm, a partition dividing the cavity into two apartments. The moth makes its escape through a little round hole in the side of the grain, which the worm cuts with its jaws before it spins its cocoon, without, however, displacing the stopper of this orifice.

There are two generations of this insect annually, the moth coming abroad in the spring and again in the autumn. Olivier says: "One thing worthy of remark is that the moths which hatch in the month of May from the grains shut up in the granaries, hasten to get out by the windows and to gain the fields, instead of which, those that come forth immediately after the harvest make no attempt to escape. It seems that their instinct informs them that they will then find no more provision in the fields for the support of their posterity."

As doubts are entertained by some writers, on the identity of our American moth with that of Europe, I here present such a detailed and carefully drawn description of our insect in its larva and its perfect state, as will enable foreign observers, I trust, to definitely settle this point. This description, it will be understood, is taken from specimens which made their appearance in the Agricultural Rooms at Albany, as already stated, this being the only instance in which this insect has fallen under my observation.

The larva, to the naked eye, appears to be a little oblong maggot, with a wrinkled skin, and of a white color throughout, except its mouth, which is blackish. It makes no effort to move or to crawl away, but lies commonly upon its side with its body bent into the shape of a crescent. When examined with the aid of a magnifying glass, it is found to be a soft, fleshy grub, cylindrical or rather broader anteriorly, and composed of thirteen segments. These are opake and without lustre, except the first segment or head, which is smooth and slightly polished. A few fine hairs are scattered over the surface. Beneath, three pairs of legs are detected, occupying the three segments next succeed-

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ing the head. They are minute projecting processes, shaped like the point of a pin. When highly magnified, they are found to be smooth, pellucid, composed of three joints, and terminated by a pair of exceedingly minute hooks. Following these are four pairs of prolegs, placed on the seventh and the three succeeding segments, and a fifth pair on the apical segment. These prolegs are so little developed that they can scarcely be detected. When viewed laterally, the segments bearing them are seen to be more gibbous, or swelled out, where these legs are situated, than are the other segments. Upon the back there is a more or less obvious darker colored line along the middle, at least on the posterior segments, caused by the dorsal vessel showing itself through the semitransparent skin. On each side of the second segment is a round impressed point. It is thrice as long as broad, and measures 0.15 in length.

The following observations on the manner in which the moth extricates itself from the grain, (see plate 1, fig. 3,) and its appearance and motions when it is abroad in its perfect state, are of sufficient interest to be here inserted.

Two bottles containing infested wheat gave out a number of the moths, the one on the 5th of March, the other a month later. In both instances it was observed that the hatching occurred the day before the access of stormy weather, indicating that, though inclosed in bottles in a stove-warmed room, these insects felt the change that was taking place in the atmosphere out doors.

The smooth round hole which the larva cuts through the shell of the grain, is barely of sufficient size to enable the moth to crowd itself out of it with much labor. The head and fore body is first protruded, followed by the fore legs. Then the hind body, being soft and flexible, is extricated by a series of writhing motions, the fore legs serving to assist very much in this part of the operation, by bracing and crowding the body over, first to one side and then to the other, and finally drawing it forward sufficiently to enable the tip to become extricated. The antennæ are next withdrawn, and the insect now remains attached by its wings and hind legs, which are still inclosed within the orifice. It is only after a protracted and laborious series of efforts and writhings that these members are extracted, little by little, the fore legs and the hind body serving as props by which to elevate

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and put them on the stretch, repeatedly, till they at length are wholly free. Intervals of repose and periods of exertion alternately occur during the whole of this process. And by its struggles many of the scales with which it is clothed are rubbed off and remain adhering to the surrounding kernels of grain.

The moth is a good pedestrian, walking with vivacity over the surface of the grain. It, however, usually moves with a skip, and commonly spreading its wings as it makes a leap, it flies a short distance, a foot or a yard it may be, alighting in the most shaded nook or corner within its reach. But, if it so desires, it readily makes a continuous flight from one side to the other of a spacious room, alighting upon the middle of the wall. One of my specimens chanced to alight in a tea cup of fine dry sand, in which I was keeping the larva of a lion-ant. This larva having recently been well fed, had now demolished its funnel-shaped burrow, and, as is its custom at such times, had exercised itself in plowing the surface of the sand into little irregular furrows. The loose sand afforded the moth no foothold sufficiently firm to enable it to make a leap and take wing, nor could it cling to the smooth sides of the cup sufficiently well to crawl up them to make its escape—although when unembarrassed and moving slowly and deliberately it is able to ascend the sides of glass vessels. It therefore walked hurriedly about, on the surface of the sand, sometimes passing directly over the partially exposed head of the lion-ant. But though the latter, at such times, instinctively essayed to grasp it in its formidable forceps, the steps of the moth were so agile that it readily glided out of the jaws of its wily neighbor.

When at rest, the wings are closed over the back, forming a rounded roof, nearly horizontal above and descending upon each side. Towards the apex of the closed wings the fringe of the right fore wing is protruded and overlaps the inner edge of the left wing, the same as in others of these small moths. The opposite sides of the insect, when its wings are thus closed, are parallel, and abruptly narrowed at the shoulders, with the head jutting out like a narrow protuberance in front. The fore legs, in repose, are stretched forward from the outer part of each shoulder, parallel with each other and usually in a line with the sides of the body, reaching forward thrice the length of the head. The antennæ are turned backwards, above the fore legs,

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and are laid upon the outer part of the base of the fore wings, reaching less than half the length of the insect.

The moth is about 0.30 long, to the tip of its abdomen, and 0.40 to the end of its wings. Its width across the spread wings is 0.60 to 0.70. The head is smooth, being covered with short appressed scales, those surrounding the eyes being longer and radiating. The palpi are long, curving upward and backward over the head like horns, their tips reaching back to a line with the neck. The basal joint is clothed on its under side with long bristle-like scales. The spiral tongue when uncoiled is about equal to the palpi in length. The antennæ are about two-thirds the length of the body and are slightly tapering towards their tips.

The general color of this moth is a uniform dull yellowish brown or brownish buff, the hue closely resembling that of coffee-and-milk; sometimes it is of a darker shade with only the head and body of this pale color. It has a satin-like gloss, which is stronger on the under side, where the color is paler than above. The palpi are black on their bases, forming a conspicuous spot of this color slightly below the eye; and near their tips is a black band, which is broader on the inner or under side. The apex of each joint of the antennæ is also black on the upper side, forming a slender transverse line half encircling these organs. The fore legs also are black, the exterior side of their thighs and hips being tawny white. The middle pair of feet are also blackish above. The upper wings are freckled with black scales at the tip and along the middle part of the plait which runs from the base of the wing obliquely to the inner margin, these latter scales often appearing like a short black stripe. Often there are also black scales sprinkled on the disk and on the inner margin towards its tip, and a small black streak on the angle of the inner margin near the base. The fringe of the upper wings is sometimes of a paler gray shade than the ground, ornamented towards the base with a pale brown band in which some black atoms frequently appear; at other times the whole fringe is of the same brown color with the lower wings. The under side of the upper wings and both surfaces of the lower ones are of a blackish gray or leaden color.

A parasitic fly is mentioned by Reaumur, which sometimes hatches from the grains containing the larva or pupa of the Angoumois moth. Twenty of these flies have been known to come from a single grain.

Of the various attempts that have been made to prevent or diminish the ravages of this moth, in Europe, it appears that the most effective method is to subject the infested grain to the heat of an oven or a very warm room. We do not know that it is ascertained exactly what degree of heat the grain can endure without losing its germinating powers. It has been proved that it may be heated to about 190° of Fahrenheit's scale without losing those powers. But it is not so much the intensity of the heat applied, as the length of its continuance, that kills the larvæ and pupæ in the grain. Thus, from 45° to 50° Reaumur's scale, continued 24 or 36 hours, has more effect than 76° to 96° for one hour.

The chief difficulty is, to maintain an equal temperature throughout the operation, and to meet this, in France, machines called Insect mills have been invented. One of the most simple of these, that of M. Marcellin Cadet de Vaux, is a large iron

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cylinder, analogous to a common utensil there in use for roasting coffee. Into this the infested grain is put, and the instrument is placed over a fire and revolved, heating the grain to a temperature of 57° to 60° Reaumur. Experiments made by a committee of the Agricultural Society of Cher in France, showed that with this machine all the insects in the grain were killed and dried in 50 minutes time, and at an expense of less than a farthing per bushel; and the grain thus dried is never afterwards attacked by these insects, even though it be mixed with other infested grain.

Dr. Herpin, who has made this insect a special study, thinks that simple friction and agitation of the grain will suffice to kill the worms within it. He remarks, "I think I have made a discovery of a very easy and very economical process for destroying the Alucita (*Butalis cerealella*) in its different states. It is by means of an Agitator or shaking-machine, furnished with little wooden or iron wings, and propelled with very great velocity (making 600 revolutions a minute). The shakings and concussions which the grain receives in passing in this machine are so quick and so multiplied, that the eggs are broken or detached from the grain, and the insect is mauled and killed even in the interior of the grain where it is enclosed. I had previously observed that some grain containing living larvæ of the Alucita, shaken briskly by the hand in a glass bottle for an hour, has produced only a small number of moths, compared with those which came out of the same grain which had not been submitted to this agitation."

7. HESSIAN FLY, *Cecidomyia destructor*, Say. (Diptera Tipulidæ.)
Plate 3, fig. 2, the male; fig. 3, the female.

Small white maggots lying at the crown of the roots of young wheat plants, causing them to turn yellow and die; and also at the lower joints of the straw causing it to break and lop down; these maggots hardening and turning brown and then resembling flax seeds, from which come black flies or midges 0.15 long with smoky wings.

This is a European insect and has been detected in Germany, France and Italy, where it has at times committed severe depredations upon the wheat crops. Written accounts which appear to refer to it date so far back as the year 1732. It was brought to this country, probably in some straw used in package, by the Hessian soldiers who landed on Staten and the west end of Long Island, August 1776, but did not become so multiplied as to

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attract general notice in that neighborhood, until 1779. From thence as a central point, it gradually extended over the country in all directions, advancing at the rate of from ten to twenty miles a year. Most of the wheat fields were wholly destroyed by it within a year or two of its first arrival at a given place, and its depredations commonly continued for several years, when they would nearly or quite cease—its parasitic insect enemies probably increasing to such an extent as to almost exterminate it. It is occasionally reappearing in excessive numbers in one part and another of our country. We hear of it at the present time as very destructive in Illinois and some of the contiguous States, the crop in many wheat fields being totally ruined by it.

This insect, as a general rule, passes through two generations annually. The first of these occupies the autumn, winter and fore part of spring, and is reared at the roots of the young grain, slightly under the surface of the ground. The second occupies the remainder of the spring and the summer, and is nurtured in the lower joints of the straw. The time when its several changes occur, however, is not perfectly uniform, being varied by the climate, the state of the weather, and perhaps other contingencies; and it is not improbable that individual specimens, placed in circumstances unfavorable to their development, in some instances have their growth so much retarded as to require even a whole year to complete their metamorphoses.

In the ordinary course of nature, therefore, our crops of winter wheat are liable to two attacks of the Hessian fly, one generation reared at its roots producing another which occupies the lower joints of the stalks. Thus the larvæ and pupæ are present in it almost continually, from the time the tender young blades appear above the ground in autumn till the grain ripens and is harvested the next summer. Our spring wheat, on the other hand, can rear but one brood of these insects; they consequently resort to it but little if at all. Nor can the Hessian fly sustain itself, except in districts where winter wheat is cultivated, in which for it to nestle during the autumn and winter.

The eggs of the first generation, or that which is nurtured in the young wheat, are deposited for the most part early in September. Dr. Chapman says the deposit is made from the latter end of August till the twentieth of September, and most other writers coincide with this, though some of them extend the time

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into October. On the 8th of October the fly was seen ovipositing in Eastern Pennsylvania, and it had wholly disappeared three days afterwards, (American Farmer, ii, 180.) The deposit is doubtless made later, to the south of us, than it is here in New York.

The description which Mr. Tilghman gives, (Cultivator viii, 82,) of his observations of the female when depositing her eggs, is so interesting that it merits to be presented in his own words. He says, "By the second week of October, the first sown wheat being well up and having generally put forth its second and third blades, I resorted to my field to endeavor to satisfy myself by ocular demonstration, if I could do so, whether the fly did deposit the egg on the blades of the growing plant. Selecting what I deemed to be a favorable spot to make my observation, I placed myself in position, by reclining in a furrow between two wheat lands. It was a fine, warm, calm forenoon; and I had been on the watch but a minute or two, before I discovered a number of small black flies alighting and settling on the wheat plants around me; and so strong seemed to be their predilection for the wheat, that I did not observe a single fly to settle on any grass, or anything within my view, but the wheat. I could distinctly see their bodies in motion when settled on the leaves or blades of the wheat, and presently one alighted and settled on the ridged surface of a blade completely within my reach and distinct observation. She immediately commenced disburthening her apparently well stored abdomen, by depositing her eggs in the longitudinal cavity between the little ridges of the blade. I could distinctly see the eggs ejected from a kind of tube or sting, or by the elongation of the body; the action of the insect in making the deposit being similar to that of the wasp in stinging. After she had deposited, as I supposed, some eight or ten eggs, I easily caught her, upon the blade, between my finger and thumb. * * * * After that, I continued my observations on the flies, caught several similarly occupied, and could see the eggs uniformly placed in the longitudinal cavities of the blades of the wheat; their appearance being that of minute reddish specks."

We obtain from Mr. Herrick's account some valuable additional information upon this same subject, with a very exact description of the eggs, as follows. "The eggs are laid in the

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long creases or furrows of the upper surface of the leaves of the young wheat plant. While depositing her eggs, the insect stands with her head towards the point or extremity of the leaf, and at various distances between the point and where the leaf joins and surrounds the stalk. The number found on a single leaf, varies from a single egg up to thirty, or even more. The egg is about a fiftieth of an inch long, cylindrical, rounded at the ends, glossy and translucent, of a pale red color, becoming, in a few hours, irregularly spotted with deeper red. Between its exclusion and its hatching, these red spots are continually changing in number, size, and position; and sometimes nearly all disappear. A little while before hatching, two lateral rows of opake white spots, about ten in number, can be seen in each egg. In four days, more or less, according to the weather, the egg is hatched."

From the time this insect leaves the egg, till its growth is completed, no better account can be drawn up than that which is given by Mr. Herrick, which merits to be preserved in his own words, as follows. "The little wrinkled maggot, or larva, creeps out of the delicate membranous egg skin, crawls down the leaf, enters the sheath, and proceeds along the stalk, usually as far as the next joint below," or, in other words, to the base of the sheath, which in the young wheat in autumn is at the crown of the root. "Here it fastens, lengthwise, and head downwards, to the tender stalk, and lives upon the sap. It does not gnaw the stalk, nor does it enter the central cavity thereof; but, as the larva increases in size, it gradually becomes embedded in the substance of the stalk. After taking its station, the larva moves no more, gradually loses its reddish color and wrinkled appearance, becomes plump and torpid, is at first semi-translucent, and then more and more clouded with internal white spots; and when near maturity, the middle of the intestinal parts is of a greenish color. In five or six weeks (varying with the season,) the larva begins to turn brown, and soon becomes of a bright chestnut color, bearing some resemblance to a flax-seed," &c.

When freshly taken from the roots of the wheat the mature worm, (see plate 2, fig. 19,) measures about fifteen hundredths of an inch (0.15) in length, by about 0.06 in width. It shows no signs of life when placed upon paper and turned over with the point of a needle. It is soft, glabrous, shining, white, oval, and apparently composed of but nine segments, although when it is

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younger twelve can usually be perceived. These segments are but slightly indicated, the sutures between them forming faint transverse lines of a greenish brown hue. Its under side is flattened and shows in the middle an oblong grass green cloud from internal visceral matter. No impressed lines or constrictions are perceptible at the sutures at first, but after the worm has laid exposed to the air an hour or more, the color of the transverse lines above mentioned, vanishes, and then, perhaps from becoming somewhat dried, faintly impressed and very slender lines may be perceived at the sutures; and faint longitudinal lines or striæ are also discernable, as though produced by the pressure of the parallel veins or ribs of the sheath and the central stalk between which the worm had laid.

The autumnal attack of the Hessian fly is in a double sense a *radical* one. Each particular shoot at whose root one or more of these larvæ nestles, is commonly destroyed, by the time the worm has attained its growth and leaves off feeding. The presence of these insects therefore, is readily detected by an examination of the young wheat in October or November. Individual shoots will be found here and there in the field, withered and changed to a light yellow color, as represented, plate 3, fig. B,† strongly contrasting with the rich green of the vigorous uninjured plants, as shown in the same figure at *. The frost or some other casualty may cause the ends of some of the other leaves to be of a pale yellow color, but here the whole plant is of that hue; and where a field is badly infested, this yellow, sickly aspect may be discerned at a distance. On examining the withered plants, the worm, or flax-seed if it has advanced to that stage, can be readily found. It is situated a short distance below the surface of the earth, at the crown of the root. One or two radical leaves start from this point, their bases forming a cylindrical envelope or sheath around the central or main shoot, which as yet is only in its infancy. It is within this sheath, at its base, that the worms repose, one, two, three or more, and by imbibing the nutritious juices of the tender young shoot, cause it to wither and die. The mechanical pressure of the larvæ, which writers have so frequently spoken of as impeding the circulation of the fluids of the plant and thereby causing it to perish, I think has had too much importance assigned to it. The young plants are so soft and pliant that they would readily accommodate themselves to

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this pressure, and if they received no more important molestation than this, would not be apt to perish as they do.

After the worm or active larva has fully completed its growth, a slight diminution in the dimensions of the inner soft parts of its body commences, in which the tougher outer skin does not participate, but retains its full size. The result of this contraction is, that the worm gradually cleaves from its outer skin. Examined with a magnifying glass when this change has recently commenced, a slight translucent space is observable at the head end, and a larger and more obvious one at the pointed or tail end, plainly indicating that the enclosed worm does not entirely fill its outer skin. This contraction continues, until the worm becomes entirely separated from its outer skin, and lies within it like the finger within a glove. The outer skin at the same time changes in color. From its original whiteness and transparency, it now becomes opake, brown, and finally of a bay or chestnut color. Though much less flat than a flax seed, its resemblance in color, size and form, to that familiar object, is so striking as at once to be remarked by every one. The figures *h*, *i* and *j*, of plate 3 give dorsal, ventral and lateral views of this flax-seed state of the insect.

When the warm days of early spring arrive, and the weather becomes sufficiently mild for some of our earliest plants to put forth their blossoms, the larva of the Hessian fly is by the genial warmth rapidly stimulated to maturity. In the year 1846, most of these insects were found changed from their larva to their pupa state, so early as the 21st of April. But as the season then was more forward than usual at that date, this was probably earlier than the change commonly occurs in the middle and northern parts of New York. A more accurate criterion by which to indicate the time when this change occurs, no doubt, is the progress which vegetation has then made. I may therefore state that, in all parts of our country, the Hessian fly will be found in its fully formed pupa state, about a week after the liverwort (*Hepatica triloba*), the trailing arbutus (*Epigæa repens*), and the red or swamp maple (*Acer rubrum*) first begin to be seen in bloom in our woods. The insect remains in this stage of its life about ten or twelve days, and then gives out the winged fly.

When the insect has reached its pupa state, the flax seed shell in which it lies inclosed has become quite brittle, breaking

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asunder transversely if rudely handled, and one of its ends slipping off from the insect within, like a thimble from the end of the finger. On removing the pupa from its case, (see plate 3, fig. *l*,) it is found to be 0.13 long by 0.05 broad, of an oval form with rounded ends, the anterior or thoracic portion being slightly narrower than the abdominal. The essential difference between its form now, and what it previously was, is, that the wings, legs and antennæ of the future fly are now perceptible in their rudimentary state, appressed to the surface of the body. The sheaths in which the wings are enveloped do not quite attain the middle of the length of the body. The outer pair of feet come out from under the tips of the wings, and reach to the anterior margin of the penultimate abdominal segment, their tips curving gently inward towards each other. The next pair of feet are somewhat shorter, and the inner pair are shorter still. They all lie in contact with each other, and extend lengthwise upon the front side of the body, but are not soldered to it. The abdominal segments are distinctly marked by strongly impressed transverse lines, and are of a milk-white color, the head and thorax being of a delicate pale pink red, and the feet translucent whitish.

The time for its last transformation having arrived, the pupa by writhing and bending its body breaks open its puparium or flax seed case, crawls from it, and works its way upward within the sheath of the leaf, until it comes to some cleft in the now dead, brittle and elastic straw. Through this cleft it crowds its body, until all except the tip of the abdomen is protruded into the air, the elasticity of the straw causing it to close together upon the tip of the abdomen, sufficiently to hold the pupa in this situation, secure from falling to the ground. And as if to preserve the body in a horizontal position, the feet are slightly separated from the abdomen, and directed obliquely downwards, with their tips pressed against the side of the straw, thus curiously serving, like the brace to a beam or to the arm of a sign post, to support the body from inclining downwards. Thus securely fixed, and now freely exposed to the drying influence of the atmosphere, the outer membrane of the pupa exhales its moisture, and as it becomes dried, cracks apart upon the back or upper side of the thorax. Out of this opening the inclosed fly protrudes its head and thorax, more and more, as it gradually withdraws its several members, the antennæ, wings and legs,

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from the sheaths in which they are respectively enveloped—a process analogous to that of withdrawing the hand and its several fingers from a tight glove—until at length entirely freed from its pupa skin, the fly, now perfect in all its parts, usually walks a few steps further up the straw, where it pauses for its body and members to acquire more firmness and strength by the further evaporation of their moisture, after which it is ready to spread its wings and mount into the air.

In the FEMALE fly the head is black and of a flattened spherical form. The antennæ are about half as long as the body, and composed of sixteen joints, which are separated from each other by very short translucent pedicels, which are about a third of the diameter of the joints. The joints are of a cylindric-oval form, their length being about double their thickness. Each joint is clothed with a number of hairs, of which those towards its base are perceptibly longer and coarser, about equalling the joint in their length, and placed in a row or whirl around it. The terminal joint is a third longer than those which precede it; whilst the two basal joints are thicker than the others, globular, and compact or not separated by an intervening pedicel. The palpi are clothed with fine short hairs and are composed of three joints, of which the two last are nearly equal in size, cylindrical, and about twice as long as broad, the basal one being more short and thicker. The thorax is black, oval, and broadest immediately back of the wing sockets. The abdomen is elongate-ovate, its broadest part scarcely equalling the thorax in diameter. It is black on the back, with a tawny yellow or red band at each of the sutures, these bands varying in their width as the abdomen is more or less distended. The under side is obscure brownish; but when the fly is newly hatched, it is bright red or yellow, with a blackish stripe along the middle, in which stripe a small red or yellow spot is sometimes present upon the middle of each segment. The abdomen is clothed in places with fine black hairs, and is composed of seven segments. When the sting or ovipositor is protruded, it forms two additional segments, of a pale red or yellow color; the apical one is a little tapering, thrice as long as broad, and is slightly dusky at its tip, the end being blunt. The other is of the same length with the apical but is twice as thick. The wings are slightly dusky and at their bases are tinged with tawny yellow. They have the three longitudinal veins whereby the genus Cecidomyia is characterized, the middle vein towards its apex and the forks of the inner vein being very slender for a species so large as this; and the cross vein between the middle and outer longitudinal veins, which is seen in many of the insects of this genus, is wanting in this species. The poisers are dusky. The legs are pale brown, the thighs paler at their bases, and the feet are black. The different pairs of legs equal each other in length, and are about 0.24 long when extended, of which length the feet form one-half. The short basal joint of the feet is so indistinct that often it is only after an examination of several specimens that one becomes assured such a joint really exists in this species.

In the MALE the antennæ are three-fourths the length of the body, with the joints short oval and almost globular. Each joint is surrounded with a whirl of longish hairs. The terminal joint does not differ from those which precede it. The two basal joints are compacted together as in the female. The antennæ diminish very slightly in thickness towards their tips. The pedicels separating the joints are smoky, translucent, nearly as long as the joints and about a third as thick. The abdomen is cylindric or slightly tapering towards its tip, and is formed of seven joints in addition to the terminal one, which is transversely oval and gives off two robust processes which are armed each with an incurved hook at its tip. The abdomen in the living specimen is black or brownish black, with bands at the sutures both above and beneath, of a brick red, tawny yellow, or grayish color, varying in their width as this part of the body is more or less distended. In all other respects the male fly corresponds with the female.

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HESSIAN FLY. PARASITES.

The Hessian fly is everywhere followed up and destroyed by parasitic insects. The most common and important one of these was described by Mr. Say in connection with the Hessian fly, (Journal Academy of Natural Sciences, vol. i, p. 47,) under the name *Ceraphron destructor*. We present a carefully drawn figure of this insect, Plate 3, fig. 1. Entomologists have been much perplexed to determine the true generic place of this species, it being evidently not a member of the genus to which Mr. Say assigned it, or even of the family to which that genus pertains. It clearly belongs to the family *Chalcididæ*. Mr. Westwood, from the imperfect figures accompanying Mr. Say's description, at first supposed it was a member of the group Eulophides (Introduction, vol. ii, p. 160) but the number of joints both to its feet and antennæ exclude it from that group, and he subsequently, as we are told by Mr. Curtis, (Jour. Royal Agricultural Society, vol. vi, p. 139) thinks it is perhaps a *Pteromalus*. Dr. Harris at first regarded it as an *Eurytoma*, but becoming aware this location was erroneous he finally concluded the genus *Rhaphitelus* to be its true place. But independent of other discordances, its antennæ indicate it to be a member of the group Pteromalides rather than that of Ormocerides where Dr. Harris's conclusion would place it. The number of joints to its antennæ exclude it from the extensive genus *Pteromalus*, and of the several kindred genera in which these organs are twelve-jointed, that of *Semiotus*, Walker (which name being pre-occupied, Mr. Westwood proposes to modify to *Semiotellus*) seems to be the only one from which it is not decidedly excluded by some one or more characters. With this genus it appears to fully coincide, having the antennæ in the male thread-like, in the female perceptibly though but slightly thicker towards their tips, the apical joints being compacted into a linear mass in the one sex, an oval one in the other, the thorax punctured, and other characters which will appear from the full description presented herewith. So far, therefore, as I am able to judge from the characters assigned to this genus without any of the foreign species in my hands for a comparison, I am induced to regard this as its true location. And I may further observe, that a parasitic destroyer of the Apple-tree caterpillar which I described in my second Report under the name *Cleonymus Clisiocampæ*, I now see is co-generic with this destroyer of the Hessian fly. I stated its antennæ to

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be eleven-jointed, the third joint small and scarcely perceptible. I now perceive this small third joint to be in reality two joints.

This Hessian-fly larva-parasite, *Semiotellus destructor*, (the female of which is represented, plate 3, fig. 1, and the antennæ of the male at the bottom of the same plate at *p.*,) is one-tenth of an inch long and of a black color, its head and thorax having a brassy green reflection. Its legs and the base of its antennæ are dull pale yellow, the middle of the thighs being often stained with brown or blackish. Its abdomen is smooth and polished and is usually tinged with yellow at its base, which tinge, sometimes at least, becomes a bright lemon yellow spot in the males.

The HEAD is as broad as the thorax and thrice as broad as long when viewed from above, concave on its hind side and convex in front. Viewed in front it appears nearly globular with a depression rather below the centre, in which the antennæ are inserted. The *eyes* are of a dull red color and but slightly protuberant, occupying the sides of the head. As seen from above they appear egg-shaped, forming an angular point at their hind part. The ocelli or eyelets appear like three red glassy dots on the crown, placed at the angles of a triangle, of which the hind side is longest. The *antennæ* when turned back reach to about the middle of the thorax. They are elbowed, the basal joint occupying a third of their total length. This joint is dull pale yellow the other joints being black and covered with an inclined beard. In the female they are very slightly thicker towards their tips, whilst in the male, (see plate 3, *p.*,) they are of uniform thickness through their entire length. Viewed with a common magnifier they appear ten-jointed, though the last joints are usually so compacted that in the dried specimen the full number cannot be distinctly discerned. When highly magnified two small additional transverse joints may usually be discerned more or less distinctly, between the second and the third joints, of which the first is rather smaller than the second. The joints are slightly longer than thick, and rather narrower towards their bases. The second joint is longer than the others, its length being about double its thickness. The last joint is egg-shaped, twice as long as thick in the female and a third longer than this in the male, its apex appearing to be cut off transversely, with a minute teat-like process protruded therefrom.

The THORAX is twice as long as broad, broadest forward of the middle and more narrowed behind than before. Its surface, as well as that of the head, has a rough and shagreened appearance from numerous close punctures. Near its anterior end it is crossed by an impressed line, marking the collar, which is short and broad, of a slender crescent form. The mesothorax or part next back of the collar shows on each side a shallow groove running obliquely upward and backward, above the wing sockets, and dividing what are termed the parapsides from the upper or main part of the mesothorax. A deep furrow across the middle of the thorax and forking upon each side, more conspicuously separates these last named parts from the tegulæ—the small oval pieces between the forks and above the wing sockets—and from the scutel, which last is large and rounded.

The ABDOMEN is black, smooth and polished, flattened egg-shape, broader and shorter than the thorax, pointed at the tip, its sutures marked by fine transverse lines, and its basal segment large. In the male it is smaller and more oval, its tip forming an angular point. Towards its base is usually seen a bright lemon yellow spot both above and beneath, which in the female is replaced by a dull pale yellowish cloud.

The WINGS are clear and glassy, fringed with fine hairs along their inner margins and tips and also along the middle part of their outer margins. The rib-vein of the fore wings recedes from the outer edge at first and then curving joins the edge at a third of the distance from the base of the wing to its apex, and continues united with the edge more than two-thirds of the distance to the apex, where it terminates. Beyond the middle of the outer margin it gives off the stigmal branch, which is curved and thickened at its end, with its apex

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notched. Three exceedingly slender abortive veins may be perceived in these wings, as follows: One extending from the inner tooth of the apex of the stigmal branch to the hind end; another arising in the base of the wing near the rib-vein, meeting the end of the transverse veinlet and continuing from thence nearly parallel with the inner margin its whole length till it reaches the edge; a third forking from this latter one near the middle of the wing and joining the hind edge equidistant between the ends of the other two.

Legs dull pale yellow, or in the males whitish, with a brown streak on the thighs. Feet black at the tips, five-jointed, the basal joint longest and the following ones successively shorter.

It is when the Hessian-fly has completed its growth and assumed its flax-seed form that this parasite attacks it. With its sting it pierces the straw to where its victim lies, and punctures its body and inserts an egg therein. The little maggot which comes from this egg consumes the larva and then occupies the flax-seed shell in its stead, till it has passed through its pupa state and become a fly, when it gnaws a small hole through the shell and straw and makes its escape. Two of the holes thus made in the straw are seen in fig. B, plate 3, at the mark §§.

In addition to this species, Mr. Herrick discovered two others which destroy the Hessian fly in its flax seed state, and a fourth which attacks the eggs. This last is a species of *Platygaster*, and is probably closely like that which we have represented in fig. 4 of plate 1. He states that this egg-parasite is abundant in autumn, and when the Hessian fly deposits its eggs upon the leaves of the young wheat, this insect searches them out, and piercing them with its sting, lays four or five of its own eggs in a single egg of the fly. These eggs it is probable do not hatch immediately, as the contents of the fly's egg are obviously insufficient to feed even one of them to maturity. It is therefore necessary that more nutriment should be elaborated for their sustenance. And accordingly the larva of the fly comes from the egg with these seeds of destruction within it; it grows to maturity and passes into its flax-seed state, by which time its "intestine foes" having also become fully grown, spin their cocoons in a cluster within the flax seed and in due time eat their way out, the worm of the Hessian fly having now perished.

By these different parasites, according to the observations of Mr. Herrick, it is probable that nine tenths of every generation of the Hessian fly is destroyed.

With regard to remedies, it may be observed that, in districts where the Hessian fly is numerous, it is scarcely possible to obtain a crop of winter wheat except upon a fertile soil. Such a soil enables the plants to elaborate a sufficiency of fluids for

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their own sustenance in addition to what is abstracted for their nourishment by the insects which invade them. To elude this fly, late sowing is one of the most easy and successful expedients that can be resorted to, and the one most fully sanctioned by universal experience. About the last of September is probably as late as it will be judicious in our climate to defer sowing wheat, and this will usually insure it against injury from this insect; for though when it appears above ground the season for the fly to deposit its eggs may not in some years be entirely past, it will be rare for a number of these sufficiently large to be perceptibly injurious, to be then laid. Where the soil is of but medium fertility, a resort to some of the hardier varieties of wheat, which are known to be in a measure fly-proof, will be advisable.

In my essay upon this insect, published in the Transactions of the State Agricultural Society for the year 1846, pp. 316–376 is given a full account of its history, habits and remedies, to which the reader is referred for numerous details, which I have not thought it necessary to repeat in this place. At the time that Essay was written, in the autumn of 1845 and the spring of 1846, this insect had suddenly become quite numerous through all the district where I reside. But after harvest, in the stubble of the wheat fields, almost every infested and swollen straw was noticed as being perforated by parasites which had escaped from it, and the depredations of the insect abruptly ceased. But, in sweeping with a net in fields of winter wheat at any time in May or June, I continued to find some of the flies, till within a few years past it appears to have wholly vanished from my vicinity. I therefore have had no opportunity to make any recent observations upon this insect, and in the foregoing account, what is stated of parasites is about the only important matter which I have been able to add to what had previously been communicated to the Society.

8. JOINT-WORM FLY, *Eurytoma Tritici*, Fitch. (Hymenoptera. Chalcididæ.) Plate 1, fig. 1.

Hard and wood-like swellings on the wheat stalks, mostly at the lower joints, retarding their growth and causing many of them to become angularly bent or elbowed; these swellings having a number of small cavities in the substance of the sheath and sometimes in that of the central stalk, each cavity containing a small yellowish-white maggot which remains in the straw through the winter and becomes changed to a four-winged fly which the fore part of May perforates a small hole through the straw and escapes therefrom; this fly 0.12 long, and jet black with pale dull yellow knees, feet and anterior shanks.

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JOINT-WORM FLY. ITS DEVASTATIONS IN VIRGINIA.

The diseased appearance which this insect occasions in the growing wheat is so similar to that produced by the Hessian fly that many persons at first supposed it to be the same insect, it residing in the straw usually immediately above the lower joints, producing an enlargement or tumor in the straw at that point and causing it to become angularly bent and lopping down more or less. But the worm instead of residing in the natural crevice between the sheath and central stalk where the larva of the Hessian fly reposes, occupies a small cell in the substance of the sheath or of the central stalk, and the swelling or gall which it occasions, is of a hard, knotty and wood-like texture instead of being soft and of a substance similar to that of the straw.

It is in the central parts of Virginia, in the district around Charlottesville and Gordonsville that this insect has been most destructive. It began to attract public notice about the year 1848. The first account of its depredations appeared in the Southern Planter, July 1851, from the pen of the editor, Frank G. Ruffin. He states that "a new and most destructive enemy to wheat has appeared under the name of the Joint-worm. Many crops in Albemarle are hardly worth cutting in consequence of its attacks, and all that we have seen or heard of, except one, are badly hurt by it. In the area it has traversed, and the completeness of its devastation within it, it has no rival amongst insects in this country. The dreaded Hessian fly is nothing to it; and no atmospheric calamity can pretend to a comparison. It sweeps whole districts, and everywhere, we hear, has done great damage, and it is feared will do much more before it is checked or destroyed." This is followed by a communication from a friend to the editor, giving an account of the habits of the Joint-worm, so far as he had been able to discover them, and an extract from the proceedings of the "Hole and Corner Club, No. 1, of Albemarle," embodying the experience its members had had with this insect, the situations where it is most destructive, the varieties of wheat which were the least injured, and the effect of guano and other fertilizers in withstanding it.

The second article which was published on this insect, appeared in the Albany Cultivator, October 1851 (vol. viii, pp. 321–324). Mr. Alex. Rives of Albemarle, transmitted to that widely circulated periodical an account of the habits of the insect, accompanied with samples of the diseased green wheat containing the

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worm, and requested they should be handed to some naturalist for a more exact description and any additional information respecting it which could be given. These specimens were forwarded to me, and the result of my examination accompanies Mr. Rives' communication. He states that some of his acquaintances had in glass jars hatched the perfect insects from these worms, and represent it to be "a dark-colored gnat, with small wings, some want of activity, and little power of flight." I described the diseased wheat and the worm therein, as follows:

The wheat stalk immediately above the lower joint, is obviously diseased for a distance exceeding a half inch. It is swollen to a size a third larger than it is above or below; it is changed to a harder and more wood-like texture; the veins are distorted and crowded out of their natural straight and parallel direction; and several long spots of a paler color and slightly elevated, like blisters, appear. On carefully cutting into these blister-like elevations, a hollow cavity is found, which is nearly a quarter of an inch long, and tapering to a point at each end. In each of these cavities lies a footless worm or maggot, which is about ten-hundredths of an inch long (0.10) by four-hundredths broad (0.04); of an oval form, rather more tapering towards one end, and divided by slight constrictions into thirteen segments. The worm is soft, shining, of a uniform milk-white color, and on its anterior end is a small V-shaped brown line, marking the situation of its mouth. So exactly does this worm in its form and appearance resemble the larva of the Hessian fly and other species of Cecidomyia which have fallen under my notice, that I entertain no doubt it pertains to the same genus of insects. And when we see it infesting the same part of the wheat stalk with the Hessian fly, and producing much the same swollen appearance of the stalk, no person but one well acquainted with the habits of that insect would suspect that this was anything different. But the Hessian fly worm occupies a natural cleft or partition in the wheat plant, to wit, between the sheath which is formed by the base of the leaf, and the main or central stalk or culm. Therefore, on drawing the leaf aside so as to part this sheath and separate it from the stalk, when it is stripped off downwards almost to its base, the Hessian fly worm is exposed to view. This may be done without any cutting or tearing of the plant. The Joint-worm, on the other hand, lives in the parenchyma or

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substance of the sheath, near its base. On separating the sheath from the culm and drawing it aside, the worm is not exposed to view: it lies in the texture that is thus separated, and can only be seen by cutting into the elevated or blistered spot already spoken of, which spots are equally manifest on the inner as they are upon the outer surface of the sheath.

Dr. Harris on reading the above description observed that this joint-worm occupied the identical situation in the straw with an insect which some years before had infested the barley in Massachusetts, from which he had obtained what was supposed to be the parasitic destroyer of the real culprit, and which he had described under the name *Eurytoma Hordei*. A correspondence upon this subject took place between us, and we mutually concluded the parent of this joint-worm would prove to be a Cecidomyia of the same species, probably, with that which had infested the barley.

In March of the following year Mr. Ruffin forwarded to Dr. Harris a quantity of the diseased straw, which he, to be more secure in having specimens of the perfect insect obtained therefrom, divided into two unequal parcels, the larger one of which he transmitted to me. An examination of these samples showed that this insect was not constantly confined to the substance of the sheath above the joints, where I had previously found it, but was sometime lodged in the joints themselves, whereby their texture becomes swollen and distorted; and in a few instances the cells containing the worms are found to be in the walls of the central stalk or culm, wholly inside of the sheath.

These straws placed upon moist earth in a glass jar, the most natural situation I could give them, and kept in a stove warmed room, began to give out the flies profusely on the 28th of April, between which date and the 6th of May when the hatch terminated, upwards of a hundred specimens were obtained. To my great surprise no Cecidomyia flies were disclosed. They were all alike and on careful inspection all were found to be females, very similar to if not identical with the *Eurytoma Hordei* from the Massachusetts barley. The parcel which Dr. Harris retained, was placed in a dry jar, and yielded him a few days later, fifteen of the same flies, all females save one. These results, in connection with the fact that no other insect but this had been obtained from the Massachusetts barley, could not but excite our strong

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suspicions that this fly was itself the real depredator upon the wheat and not a parasite which had in such a multitude of instances killed the destroyer to come out thus in its stead. But as all the family of insects to which this species pertains were currently regarded by authors as parasitic, and we were acquainted with American species of this same genus *Eurytoma* which we had conclusive evidence were parasites, we could not but hesitate in adopting this view.

Prof. J. L. Cabell, of the University of Virginia, residing in the midst of the region where it was so destructive, was simultaneously directing his attention to this insect. In the spring of this same year, 1852, from different parcels of wheat he bred flies to more than a hundred in number, obtaining the same insect in every instance. In examining the worms in the diseased straw he met with two kinds, one being yellowish, smooth and sluggish; the other white, hairy and very active in its movements. This last was evidently a parasite. In several instances it was found in the same cell with an individual of the first kind, and feeding upon it, but at all times it was found in an exceedingly small proportion of cases, not more than one in twenty or thirty. Prof. Cabell embodied the results of his investigations in an article which was published in September, 1852, in the Southern Planter, vol. xii, pp. 271, 272, in which the fly obtained from the joint-worm was announced to be the *Eurytoma Hordei*, Harris, to which he adds that everything concurred in confirming his first impression that the mischief to the wheat was occasioned exclusively by this insect, and that he was obliged to hold to the opinion, at least until another fly was produced, that entomologists have made a premature generalization in ascribing exclusively carnivorous habits to the group of insects to which the *Eurytoma* belongs.

It will readily be seen that the question whether this *Eurytoma* was a phytophagous or a carnivorous insect, a vegetable feeder or a flesh eater, whether it was the real parent of the joint-worm or its most inveterate foe, and consequently whether it should be combatted and destroyed or cherished and protected, was no less interesting in a scientific than it was important in a practical point of view. How could the real fact be ascertained? I felt confident that if I was personally present where this joint-worm abounded, I could assuredly observe it so closely and obtain

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JOINT-WORM FLY. LARVA FROM WHICH IT COMES.

such perfect knowledge of it as would settle the point definitely and conclusively; and for a time I had it in serious contemplation to visit Virginia on this business. But other avocations came to me, which diverted me from this purpose.

Was any further light upon this topic attainable? How was it possible for this *Eurytoma* to thus come from these joint-worms and the worms in barley in every observed instance, to the amount of some hundreds, if it were not the legitimate descendant of those worms. It occurred to Dr. Harris that a portion of the joint-worms might perhaps complete their transformations and come from the straw the first summer, leaving only those containing parasites to pass over till the following spring, and he addressed Mr. Ruffin on this subject, desiring him to have this point examined. Prof. Cabell, the only respondent to this inquiry, states that he has known a few flies to leave the straw the first year, but in each instance the fly which came forth thus was the same *Eurytoma*. It, moreover, is quite evident that no considerable number of flies do leave the straw anterior to the hatching of the *Eurytoma* in May, or we should meet with their evacuated cells, with the openings therein through which the inmate had made its exit.

Another important inquiry suggested itself to Prof. Cabell. Although the larvæ of the gall-flies (*Cecidomyia*) of the order Diptera, and of the gall-bees (*Cynips*) of the order Hymenoptera, may be closely similar to each other, is there not some character by which they can be distinguished, whereby it can be ascertained whether this joint-worm itself is really a Dipterous larva, as I had confidently pronounced it to be, or a Hymenopterous larva as it must be to produce this Eurytoma? Upon comparing the Dipterous larvæ of the Hessian fly with the Hymenopterous larvæ found in oak-galls, Prof. Cabell noticed that the blackish jaws of the latter were placed upon a straight transverse line, whilst in the former they have an oblique direction, their ends meeting at an acute angle. Thereupon inspecting the joint-worm he found its jaws plainly indicated it to be a Hymenopterous larva. Specimens were forwarded to Dr. Harris, which were carefully examined by him, and also by Prof. Jeffries Wyman, a skilful anatomist and experienced microscopical observer. They fully confirmed the correctness of Prof. Cabell.

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JOINT-WORM FLY. A MIDGE LARVA ALSO IN THE WHEAT.

Upon this subject I would observe that I have in instances without number, with the aid only of the common pocket magnifier, noticed the jaws in the larvæ of various species of Cecidomyia appearing as two minute black lines meeting at an acute angle, in the form of a letter V or sometimes like a Y, and have mentioned this in my published descriptions of some of these larvæ. More recently the larvæ of numbers of the gall bees have come under my examination, in the larger ones of which, the jaws are equally distinct, forming a straight transverse line slightly interrupted in its middle. Prof. Cabell is undoubtedly correct in regarding this as a decisive character whereby we may know whether the larvæ we meet with in galls pertain to the order Hymenoptera or Diptera.

But this instead of diminishing our doubts upon the question at issue—whether the Eurytoma is or is not a parasite—greatly increases those doubts. It sufficiently proves that the worm which Prof. Cabell found in the wheat is the real larva of the Eurytoma; and Prof. Cabell and Dr. Harris hence inferred that I was in error in pronouncing the worm which I found in the Virginia wheat from Mr. Rives to be a Cecidomyia. But that by no means follows. On the contrary, the very character stated renders it quite evident that I was correct. I was at that time perfectly familiar with the appearance of the mouth in the larvæ of the Cecidomyiæ, and of the Hessian fly in particular. Had there been any perceptible variation therefrom in the larva examined, I think I could not have failed to observe it and to have noticed it in the careful description which I drew up. In that description I say, "The worm is soft, shining, of a uniform milk-white color," not at all yellowish therefore, like the Eurytoma larva, and no green central cloud as in the Hessian fly larva; and observe what follows, "and on its anterior end is a a small V-shaped brown line, marking the situation of its mouth." Now this V-shaped brown line is the jaws, their ends coming together at an acute angle. It is clear, therefore, that the worm sent us from Mr. Rives as being the joint-worm was a different species from that which Prof. Cabell found in the wheat the following year, and was undoubtedly a Cecidomyia, as I supposed it to be. It was not till some considerable time afterwards that I became aware of this. When I was first informed of the distinctive mark which Prof. Cabell had ascertained to exist

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between the Hymenopterous and Dipterous larvæ, I supposed this character to be so minute and inconspicuous that it could only be observed upon making a nice dissection of the mouth. A few years later, however, on coming to see the larva of a Eurytoma, a glance at its head and mouth assured me I could never have confounded a larva of that kind with a Cecidomyia larva. I have since examined several Eurytoma larvæ of different species. I observe in all of them that the head is broad and bluntly rounded, not tapering to a point, and the discolored transverse line formed by the jaws is placed at the very end of the head. In the Cecidomyia larvæ on the other hand, the V mark is invariably seen a short distance back from the anterior end, the head being retracted and thus appearing much as though the insect, if it had not, as the common expression is, bit off its own nose, had accomplished an equally marvellous feat, to wit, had swallowed its mouth, whereby the jaws come to be seen partly down its throat. It is only when they are in use that, in the larvæ of the Cecidomyiæ, these jaws, these minute black lines, are moved forward to the orifice at the anterior end of the head; at all other times they are retracted and are situated a short distance back from the end, being quite visible through the transparent skin which overlies them.

Thus the highly important fact is, I think, well authenticated—a Cecidomyia larva occurred in this diseased Virginia wheat, as well as a Eurytoma larva—the one being found in the same kind of cavities or cells in which the other occurred. The wheat which I examined was green and succulent. The worm in it was at that time one tenth of an inch long. This is the average length of the mature larvæ in the genus Cecidomyia, although there are some species which grow to twice this size. On the other hand, it is from the dry straw that the Eurytoma larva has been taken, so far as appears. It certainly looks, therefore, as though this Cecidomyia larva might leave the wheat and go into the ground before the crop fully ripens and is harvested, whereby it has wholly eluded observation, its evacuated cells perhaps becoming so much altered and effaced that they are not liable to be noticed in the dry straw; whilst the Eurytoma larva by feeding upon and consuming the former, in numerous instances comes to occupy the cells in its stead, remaining in them till the following year, whereby it is this insect only which we obtain

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from the dry straw. Several incidental circumstances occur to my mind, some favoring and others militating against this view. It is scarcely worth while to consider these in detail or speculate further upon this subject, since it is only by actual observation that the real facts in the case can be ascertained. I must confess, however, that now, when I come to cast over all the evidence which we have in relation to this subject, I feel less confident than I have been for a few years past, that this Eurytoma is the real parent of the joint-worm.

It was in the year 1853 that the concluding portion of the second edition of Dr. Harris's Treatise on Injurious Insects passed through the press, giving the most full and exact account of the joint-worm that has hitherto appeared. He regards the fly which we obtained from the diseased straw as being a mere variety of the barley fly which he had previously described, this wheat fly differing in no respect from that except in the color of the shanks of the fore legs, these being pale yellow instead of black. And he regards this fly as being in all probability the real cause of the disease in the wheat and barley, and not a parasite as he had supposed it to be in the first edition of his treatise.

In connection with the *Eurytoma Hordei*, Dr. Harris gives an account of the insect which appears to be its most common parasitic destroyer, specimens of which we had obtained from the same parcels of wheat from which the Eurytoma came. There is every reason to believe that this parasite descends from the active white worm clothed with a few scattering hairs, which Prof. Cabell occasionally found as already stated, sometimes in the same cell with a dead and partly consumed Eurytoma larva, and sometimes alone in the cell, it being perceptibly larger in the latter case than in the former. Two individuals of this fly which I obtained did not come from the straw until some days after the hatch of the Eurytoma flies had ended. They are 0.10 long, black, with pale yellow legs having the thighs black and the anterior and hind shanks more or less smoky, the claws at the end of the feet being black. The fore wings usually have a smoky cloud or spot in their middle. The basal joint of the antennæ is black in the male and pale or whitish in the female. It pertains to the same family CHALCIDIDÆ to which the Eurytoma belongs, and Dr. Harris refers it to the genus *Torymus*, but no specific name for it accompanies his description. I therefore

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propose for it the name by which it has been ticketed many years in my cabinet, *Torymus Harrisii.*

The joint-worm continued its depredations upon the wheat to such an alarming extent, that in the year 1854, a "Joint-worm Convention" composed of persons who were sufferers from it, was held at Warrenton, Va., for the purpose of comparing their views and experience and deciding upon the best modes of opposing this enemy. The idea of putting down an obnoxius insect by the same machinery and denunciatory resolutions which they were accustomed to bring into operation against a political adversary, caused at the time some merriment among our newspaper editors here at the north. I have been unable to find any report of the proceedings of this convention, but I see it stated that it resulted in recommendations of a better cultivation of the wheat crop, a use of guano or other fertilizers, and all other measures which tend to promote a rapid growth and early ripening of the grain, and also after harvest burning the stubble and any other masses of vegetation which may be growing contiguous to the wheat field.

From the occasional notices of this joint-worm which we meet with in the Southern Planter for a few years subsequent to this, it would appear that it still remained so common as to be a subject of public concern. The fact of its thus continuing to be destructive year after year strongly indicates that the Eurytoma was itself the real enemy and not a parasitic destroyer of that enemy, since were it the latter, so numerous as it was in 1852, we should expect this malady in the wheat would speedily have ceased.

A similar disease began to appear about this time in the barley crop in the central counties of the State of New York. The first samples of the affected straw were received at the Agricultural Rooms in Albany from L. Lincklaen of Cazenovia. The disease in this straw was identical with that of the Virginia wheat and the Massachusetts barley, and as the worm was found to be the larva of a Eurytoma, I made no doubt it would produce an insect of the same variety that Dr. Harris first observed. But on coming to examine the flies which came from this New York barley, of which upwards of fifty were obtained, I was surprised to find the color of their legs so dissimilar as to forbid their being regarded as the same species. Thereupon, on notic-

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ing in such a number of these barley flies and a still larger number of the flies from the joint-worm, how perfectly constant and uniform the insects from these two sources were in the colors of their bodies and limbs, the fact became patent that the fly obtained from the Virginia joint-worm was a distinct species from the Massachusetts barley-fly, and not a mere variety of it as I had all along supposed it to be. An article upon this subject was thereupon inserted in the Journal of the Society, for April 1859, (vol. ix, p. 115,) in which I named and gave the distinctive marks of these three species, about as follows:

The BLACK-LEGGED or Massachusetts BARLEY-FLY, *Eurytoma Hordei*, Harris, is black, its feet and knees pale dull yellow, its *anterior shanks* of the same *dusky* or blackish color with the middle and hind ones, its neck with a dull whitish transverse spot on each side.

The JOINT-WORM FLY, which I name *Eurytoma Tritici*, is black, its feet and knees and its *anterior shanks dull pale yellow*, its neck with a dull white spot on each side.

The YELLOW-LEGGED or New York BARLEY-FLY, *Eurytoma fulvipes*, is black, its *legs bright tawny yellow*, its feet whitish, its neck with a small dull white dot on each side.

In this connection it should be added that a fourth fly of this kind has recently commenced infesting the rye in the eastern part of Pennsylvania. I described this species in the American Agriculturist, August 1861, (vol. xx, p. 236) giving it the name of the RYE-FLY, *Eurytoma Secalis*. It is intermediate between the Joint-worm fly and the New York barley fly, its *anterior and posterior shanks* being *dull pale yellow*, the middle ones only being black.

These four insects are closely alike in their size, form and sculpture, the differences in the color of their legs being the most conspicuous and almost the only character whereby they are distinguished from each other. The males are much less numerous than the females and are usually smaller in size, with the abdomen of a different form. It is oval and somewhat depressed or flattened in the females, and when I had before me specimens of this sex only, I much doubted whether they rightfully pertained to the genus *Eurytoma*. It is the males only which present the characters assigned to this genus by authors. In these the abdomen is compressed, more strongly so in some

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species than in others, the *Eurytoma Hordei* presenting the generic characters more perfectly than either of the three other species.

The joint worm remains in its cell in its larva state through the winter, and changes to a pupa with the first warm days of spring. Its final transformation takes place and the flies come out from the straw during the first half of May. With their stings they pierce the green stalks of the grain and insert their eggs therein, one in a place, usually just above the lower joints, and from these eggs come the worms which are afterwards found there upon dissecting the straw. But if this fly is really a parasite, it will be found that a worm is lying in the straw at each point where it inserts its sting, into which worm the egg is thrust. By watching one of these flies therefore, when it is thus occupied, its true character may readily be ascertained.

As the joint-worm lies in the straw through the autumn and winter, it will be obvious to every person that the most feasible mode of combatting and destroying it is to burn the straw containing it.

9. BLACK-LEGGED BARLEY-FLY, *Eurytoma Hordei*, Harris. (Hymenoptera, Chalcididæ.)

In barley, particular stalks stunted and backward in their growth and of a yellow, sickly appearance, these stalks having a hard woody swelling at one of the lower joints, the surface of which shows little oval glossy elevations like blisters, within which is a cavity in which a soft straw-colored maggot lies, which remains in the ripened straw till the latter part of the following May, when it gnaws a hole in the straw and comes out, a shining black fly resembling a small ant 0.12 long and having obscure yellowish knees and feet.

In connection with the joint-worm fly which has been considered in the preceding pages, may most appropriately be given an account of the three other insects which have been mentioned as being most intimately related to it both in their appearance and habits, although they attack other kinds of grain. And the same figure 1 of plate 1 which represents the female of one of these species serves equally well to illustrate the others, they are so much alike in every respect except the colors of their legs. We will proceed first to consider the species which has been known the longest time, the Black-legged or Massachusetts barley-fly.

It is upwards of thirty years ago that an insect malady prevailed in the growing barley in the north-eastern section of Massachusetts, whereby only a small crop of this grain could be

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obtained, some farms producing little more than the seed which was sowed. It formed the subject of several communications in the New England Farmer, in 1829 and the following years, of which the more important portions are extracted in the account contained in Dr. Harris's Treatise. This disease of the barley had been prevailing for some years previous to these published notices of it, rendering the crop so precarious that in some places the cultivation of this grain had been abandoned. It was conjectured that the insect which occasioned this disease had been imported from Bremen or some other German port, in some seed barley which was sown in the vicinity of Newbury, three or four years before 1829. John M. Gourgas, Esq., of Weston, Mass., ascertained that the worms in the straw were transformed to small flies, "about the make and size of a small black ant, with wings," which some persons supposed to be the same as the Hessian fly. Myriads of these flies were found alive in beds which had been filled with the diseased straw; and an opinion prevailed, that the troublesome humors with which many persons were at that time afflicted in some of the places where this straw was thus employed, were occasioned by the bites or stings of these flies, in consequence of which the straw beds which were found to be infested with these insects, were generally burnt.

Mr. Gourgas (New England Farmer, viii, 299) gives the following description of the manner in which the growing grain was affected. When the barley is about eight or ten inches high the effects of the disease in it begin to be visible by a sudden check in the growth of the plants, and the yellow color of their lower leaves. If the butts of the straw are now examined, they will be found to be irregularly swollen and discolored between the second and third joints, and, instead of being hollow, are rendered solid, hard and brittle, so that the stem above the diseased part is impoverished, and seldom produces any grain. Suckers, however, shoot out below, and afterwards yield a partial crop, seldom exceeding one half the usual quantity of grain. Mr. Gourgas further remarks, that the quality or soundness of the grain which is produced is not at all affected, the disease being seated wholly in the straw, in which, and not in the kernels of the grain, the eggs or seeds which perpetuate this malady from year to year are lodged.

Dr. Andrew Nichols, of Danvers, states (New England Farmer,

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viii, 138) that the worms lying in the swollen part of the barley stalks, are about one-tenth of an inch in length, and of a yellow or straw color; and that, in the month of November, they appeared to have passed from the larva to the chrysalis state. They live through the winter unchanged in the straw, many of them in the stubble of the field, while others are carried away when the grain is harvested. When the barley is threshed, numerous small pieces of the diseased straw, too hard to be broken by the flail, will be found among the grain. Some of these may be separated by the winnowing machine, but many others are too large and heavy to be winnowed out, and remain with the grain, from which they can only be removed by the slow process of picking them out by hand.

A few pieces of the diseased barley straw were furnished to Dr. Harris, who found in each of them several small whitish maggots, each of these being imbedded in the thickened and solid substance of the stem, in a little longitudinal hollow, of the shape of its own body, its presence being known by an oblong swelling upon the surface. In some pieces of straw the swellings were so numerous as greatly to disfigure the stem, the circulation in which must have been very much checked if not destroyed. Early in the following spring these maggots entered the pupa or chrysalis state, and on the fifteenth of June the perfected insects began to make their escape through minute perforations in the straw, which they gnawed for this purpose. The insects continued to release themselves from their confinement till the fifth of July, after which no more were seen. Instead of a midge or two-winged fly similar to the Hessian fly which he confidently looked for these maggots to produce, Dr. Harris says it was "much to my surprise, they proved to be minute four-winged Ichneumon-flies, which are parasitical, preying in the larva state on the bodies of other insects." These were described in the New England Farmer for July 23d, 1830 (vol. ix., p. 2) under the name of *Eurytoma Hordei*. At that time Dr. H. supposed the *Semiotellus destructor*, (of which we have spoken on a preceding page,) the parasite which destroys the larva of the Hessian fly, to be a species pertaining to this same genus *Eurytoma*. This error contributed still further to impress him with the view that this barley fly, like that, was a parasite which had destroyed a midge similar to the Hessian fly, and had thus come out in its

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place. And ten years later, in the first edition of his Treatise (p. 436) he says, "Although the barley-fly has not yet been seen by me, there does not exist the smallest doubt in my mind that it is a two-winged gnat, like the Hessian fly." Indeed, this was evidently the most intelligent and correct conclusion which he could form from all the evidence which he at that time had before him.

Dr. Harris represents this insect to be "very much like the parasite of the Hessian fly." The reader may judge of the similarity of these two insects by comparing the magnified figure, plate 1, fig. 1, with that of the Hessian fly parasite, plate 3, fig. 1. Although there are many points of resemblance, there are also obvious differences, which, however, become less observable in nature, in consequence of the minute size of these objects. In particular, the abdomen of the female barley fly has the elliptic form represented in the figure, but when viewed laterally, it has the egg-shaped form of the Hessian fly parasite's abdomen, being, however, much more long and slender than in that insect. In the second edition of his Treatise Dr. Harris gives the following description of this barley fly.

"The body is jet black and slightly hairy. The head and thorax are opake and rough with dilated punctures. The hind body is smooth and polished. The thighs, shanks, and claw-joints are blackish; the knees, and the other joints of the feet are pale honey-yellow. The females are twelve or thirteen-hundredths of an inch long. The males are rather smaller, and are distinguished from the females by the following characters. They have no piercer. The joints of their antennæ are longer, and are surrounded by whorls of little hairs. The hind body is shorter, less pointed behind, and is connected with the thorax by a longer stem or peduncle. These insects are very active, and move by little leaps; but the hindmost thighs are not thickened."

To this description it should be added that on each side of the neck is a dull whitish transverse spot.

Although this insect was so numerous in Massachusetts at the period to which reference has been made, Dr. Harris, writing upwards of twenty years afterwards, informs us that since that time he had heard nothing more either of it or of the disease of the barley which it occasions. And in no other part of the country, down to this present time, has it shown itself in sufficient numbers to attract public notice. The following additional facts with respect to it are therefore important, indicating as they do that this depredator is still lurking in our country, and will no doubt at some future time become again so multiplied in some locality, as to seriously injure the barley crop.

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YELLOW-LEGGED BARLEY-FLY. IN CENTRAL NEW YORK.

On examining the several insects which I had collected May 23d, 1861, in a rye field at Salem, N. Y., by sweeping over the young grain with a net, one was discovered which I identified as being a female of this Massachusetts barley fly. Thereupon repairing again to the same field four days afterwards, on a careful search several more of the same insects were found; and returning to the same hunt again, June 5th, three males of this species were obtained. We hereby learn the date when these flies are naturally abroad to deposit their eggs. Those obtained by Dr. Harris, it hence appears, were delayed in coming out, in consequence of the artificial conditions under which they were placed.

This rye field was inspected a few weeks after and again at harvest time, but none of the stalks were discovered bent or swollen at their lower joints. It would hence seem that this insect was present in this grain merely for the purpose of examining it, and finding it was unsuited to its wants it forsook it and went elsewhere to deposit its eggs.

10. YELLOW-LEGGED BARLEY-FLY, *Eurytoma flavipes*, Fitch. (Hymenoptera. Chalcididæ.)

In barley, the stalks diseased in the same manner as by the preceding insect, and the maggots therein producing similar flies, but having the legs and also the tip of the body bright tawny yellow.

Central New York, it is generally known, is the great barley-growing district of this country. And in this crop the county of Onondaga takes precedence of all others, it producing, according to the census of 1850, nearly a third more than any other county in the State, and surpassing the total amount yielded by Ohio, the state which ranks next to New York in this crop. But all through Central New York there has been a great change, a great diminution of the barley crop within the last ten years. Hon. George Geddes, President of the State Agricultural Society, in his survey of Onondaga, informs us (Transactions, 1859, p. 332) "Formerly we expected forty bushels to the acre; now we cannot rely on more than twenty." And he goes on to state that "This falling off is principally due to the depredations of an insect, described by Dr. Fitch in the Journal of our Society of April 1859, and named the Yellow-legged or New York barley-fly. Unless some relief from it is found, we must entirely discontinue raising this crop, and henceforth barley will hardly appear in our census reports."

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YELLOW-LEGGED BARLEY-FLY. MR. GEDDES' ACCOUNT OF IT.

Mr. Geddes states that "this insect attacks the crop just before the heads appear, laying its eggs in the straw; the stalk is either entirely destroyed, or if any grain is matured the kernels are small and imperfect. When the crop is thrashed, small pieces of straw are seen, having enlarged places in which the cells and larvæ of the insect are found."

The first specimens of this diseased barley straw were sent to the Agricultural Rooms, Albany, October 1856, by Ledyard Lincklaen, Esq., of Cazenovia. An examination of this straw showed the malady to be identical in every respect with that in the Massachusetts barley as described by Dr. Harris, and the worms therein corresponded fully with Prof. Cabell's account of the Eurytoma larvæ or joint-worms in the Virginia wheat. I therefore was fully confident it was the *Eurytoma Hordei*, which occasioned this disease and would be produced from this straw. Hoping some parasites might be obtained in company with this insect, the straw was inclosed in a glass jar and set aside. Upon the 23d of the following July a number of flies were noticed running about in this jar, and a much increased number on the 25th, their transformations having been retarded, no doubt, by the dryness of the straw. As there appeared to be no parasites accompanying them and other engagements were pressing upon me at that time, the jar was placed aside and forgotten. On coming to examine it afterwards, some sixty flies were found in it, dead, but otherwise in good condition for study, about a quarter of the number being males. As has already been stated, they led me to much more important results than I had anticipated. The uniformity and constancy of the colors in their bodies and limbs, as seen in such a number of examples, showed that the insects of this genus are not liable to vary in this respect, and that this fly in the New York barley was a species distinct from that of Massachusetts and also from the joint-worm of the Virginia wheat. It was named and described accordingly, in the Journal of the Society, as has been related on a preceding page.

In addition to this diseased straw from Madison county, samples of the same kind have since been received from Hon. George Geddes of Onondaga, G. C. Bradley of Jefferson, Wm. H. Davis of St. Lawrence and Wm. D. Cook of Wayne counties, thus show-

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ing that this insect has extended itself over all that portion of the State where barley is most extensively cultivated.

On particularly inspecting the diseased barley straw it will be observed that when there are only two or three worms in it, lying slightly distant from each other, the stalk does not become bent or swollen into a knotty enlargement. On stripping off the outer sheath the point where each worm is lodged in the central or main stalk is indicated by a slightly elevated, smooth, glossy, oval spot, resembling a blister, placed lengthwise of the stalk. On the surface of this spot the fine elevated lines which form the longitudinal fibres or veins of the straw are almost wholly obliterated, whilst around the margin of the spot these lines are crowded together and more or less wavy and distorted from their natural straight and parallel position. But where a number of the worms are nestled in the same part of the stalk, as they usually are, just above one of the lower joints, the whole stalk becomes thickened and swollen, hard, knotty and of a wood-like texture, and so bent, so distorted and grown out of shape, that its natural structure is almost wholly obliterated. Upon the outer surface of this swelling several of the same elevated, glossy, blister-like spots occur which are noticed above. In cutting into one of these spots an oval cavity or cell is there found, about 0.18 long and 0.05 wide, in which a worm resides. These cells are usually situated in the walls of the central stalk, though they sometimes occur also in the sheath which surrounds the stalk; but the straw is so much distorted and its structure is so changed and confused that it is frequently impossible to determine whether it is in the outer sheath or the central stalk that these cells are formed; the hollow in the centre of the straw being nearly or quite obliterated, in consequence of being encroached upon by these cells. The walls of the cells are quite thin, both above or over the worm, and beneath or between it and the central cavity—so thin that they are slightly translucent. The surface on the inner side of the cells is smooth, and shows near its lower end a few small, black, shining grains, like scales, adhering to it; which are probably the feces of the worm.

The worm or larva which lies in this cavity is about 0.14 long and 0.04 or slightly less in thickness. It is shining and of a very pale yellow color, almost white. It is straight, motionless, destitute of feet and of a distinct head, of an oval form, slightly

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more rounded at its anterior than at its hind end, and its mouth is indicated by a transverse dark brown line formed by its jaws. It is divided by fine impressed transverse lines into segments or rings, of nearly equal length, the number of which is usually twelve, though sometimes thirteen are visible.

I present, in conclusion, a full description of this species, as drawn up on a careful comparison of numerous specimens, in their dried state; and this description will also apply in most of its particulars to the two preceding and also to the following species.

The FEMALE of the yellow-legged barley-fly (see plate 1, fig. 1,) is 0.12 or 0.13 in length to the end of the body.

The HEAD, viewed from above, is nearly twice as wide as long, convex in front, concave at base, and is closely and irregularly punctured and bearded with short gray hairs. It is black, with the mouth chestnut red. The antennæ are black with their basal joint pale tawny yellow. When turned backward they reach a third of the length of the thorax. They are bearded with small black bristles which incline forwards. They are perceptibly thicker towards their tips and are composed apparently of ten joints, whereof the two or three last ones are usually so compacted together as to appear as a single joint much longer than those which precede it. The first joint is long, somewhat tapering and less thick than the following joints, with which it forms an elbow. The second joint is shortest and the third is longer than those which follow it. The fourth and following joints are little longer than wide, shaped like a tea-cup, their bases being rounded and their tips cut off transversely. The last joint is longer than that which precedes it, and is a little narrowed towards its tip, the end being bluntly rounded.

The THORAX is oval and about three times as long as broad, broader across its middle than the head, its anterior end blunt and abruptly rounded, conforming to the concavity of the base of the head. Its collar is half as long as wide and is distinctly separated by a smooth, shining, elevated, transverse line, which bounds it posteriorly, this line being bowed and parallel with the rounded anterior end of the thorax. Viewed laterally the thorax approaches to a crescent in its shape, the back being very convex or arched, with its anterior end obliquely cut off by the head. Its surface is rough punctured and finely bearded, like the head, and of a black color. On each side of its anterior end a pale dull yellow dot, elevated and smooth, is usually perfectly distinct.

The ABDOMEN is of the same length with the thorax, but scarcely as broad. Viewed from above it is long oval, with the sting protruded and forming a sharp, attenuated point at its tip. The back is excavated or occupied by a long oval hollow, extending from near the base to the tip. It is divided by fine transverse lines into five segments of nearly equal length. Viewed laterally it has the form of a long cone with its base hemispherically rounded. Its surface is highly polished, smooth and shining, of a black color with the attenuated point at its tip dull pale yellow.

The LEGS are shining, pale tawny yellow, nearly the hue of bees-wax, with the feet whitish and their tips black. They are of equal thickness, the anterior pair being shortest. The hind shanks are slightly curved. The shanks are armed similarly to kindred species of this group; that is to say, near the tip of the fore shanks on their inner side is a large cylindrical spur which reaches half the length of the basal joint of the feet and is forked at its tip, the outer fork being twice the length of the inner one, sharp-pointed and incurved; the middle shanks have a single spine at their tips, and the hind ones have a pair. The feet are five-jointed, the basal and apical joints being about equal in length and the middle ones shorter, the fourth one shortest. The four forward feet have at their ends a single toe, which is scarcely as thick as the joint to which it is appended, is longer than thick, and is inclined obliquely inward; and from its apex projects a hoof or nail of a conical form, the

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width of its base equalling its length. The hind feet instead of this toe and nail have at their ends a pair of hooks.

The WINGS are transparent, glassy and colorless, except on the disk of the forward pair adjacent to the inner side of the rib-vein, where a large smoky yellowish cloud is faintly perceptible. The rib-vein is fringed with long hairs, like eye-lashes, along its outer side; it unites with the outer margin in its middle, and continues thus united for a short distance only, before it gives off the stigmal branch, which branch is short, thickened at its end, and notched, the outer tooth being small and slender.

The MALES are smaller than the females, measuring 0.10 to the end of their wings, which reach a little beyond the end of the body. Their antennæ are also longer, reaching half the length of the body, and are thread-like or of equal thickness through their whole length, and thinly bearded with short robust bristles. They are composed apparently of nine joints, which are of a cylindrical form, three times as long as thick, the second joint being shortest, but little longer than thick, and the third joint longer than those which follow it. The joints are separated by a wide notch on their upper side at each articulation. The last joint is rather longer than those which precede it and tapers to an acute point at its tip. The abdomen is shorter than the thorax and of a flattened oval form. The thighs are black at their bases and the hind pair is wholly black, except at their tips. The hind shanks also are dusky at their tips.

The joints of the antennæ in the males of this species are not surrounded with whorls of hairs as they are in *Eurytoma Hordei*. It perhaps does not rightfully pertain to this genus, therefore, though I see no other one in which it can be included.

11. RYE-FLY, *Eurytoma Secalis*, Fitch. (Hymenoptera. Chalcididæ.)

In rye, particular stalks stunted and bent at one of their lower joints, where is a hard woody swelling, the surface of which shows little smooth blister-like elevations within which is a cavity in which lies a soft white or straw-colored maggot, which remains in the ripened straw till the latter part of the following May, when it gnaws a hole in the straw and comes out, a shining black fly resembling a small ant 0.10 long, its knees and feet and its fore and hind shanks pale dull yellow, the middle shanks black.

In August, 1860, Daniel Steck, Esq., of Lycoming county, Pennsylvania, transmitted to the office of the American Agriculturist, several pieces of rye straw, containing the larvæ of an insect which had made its appearance in his vicinity and was attracting notice by the injury it was threatening to do to this grain crop. In May 1861, additional slips of this diseased straw were sent by him, two of which were forwarded to me for information as to what insect this was, Mr. Steck himself supposing it to be a Cecidomyia analogous to the Hessian fly. The straws received were of the previous year's growth, which had been kept in a cool place, whereby the insect had probably been somewhat retarded in completing its transformations. They reached me on the first of June, and the flies were then coming out from the straw. In a few days fifteen specimens were obtained, all save one being females.

The disease in the straw was plainly the same as that in bar-

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ley, produced by the two insects which have last been considered, and with that in wheat caused by the joint-worm. In these samples of the straw the cells in which the larvæ were contained were situated in the walls of the central stalk, not in the sheath surrounding it. And the flies though closely akin to those of the barley and wheat were not identical with either of those species. They were most nearly like those of the joint-worm fly, from which they were observed to differ in every instance, in having the hind pair of shanks dull pale yellow, as well as the forward ones. An article was hereupon communicated and published in the American Agriculturist, August 1861, (vol. xx., p. 235,) in which I described this species under the name of *Eurytoma Secalis* or the Rye-fly.

As the disease which this insect causes in the rye is in every particular like that in barley and wheat which has been so fully described in the preceding pages, and the insect itself differs so little from the foregoing ones, any extended account of it and its operations is unnecessary. I therefore have only to add that this rye fly is very slightly smaller than the other species, the female in different examples measuring 0.10 and 0.11 in length, and the male is scarcely if at all inferior in size to the other sex. The hind shanks are slightly dusky and less bright than the forward ones, but are manifestly paler than the middle ones. An obscure brown dot or lunule is faintly perceptible on each side of the neck. The male, in the structure of his antennæ, the form of his abdomen, &c., corresponds with the description already given of the yellow-legged barley-fly.

After giving these four Chalcidian insects, which come from larvæ lying in closed cells in different kinds of grain, such a particular review as I have done in preparing this account of them, I ought not to dismiss the subject without remarking that I do not in the least doubt that they are the real cause of the disease which we see in the grain. Were they parasites, so very numerous as they have been in the straw in particular instances, I cannot but think this disease in the straw would have ceased, instead of continuing on as it has done, year after year, with no material abatement. And further, were they parasites, I cannot but think that in some of the many instances in which I have bred these insects, I should have obtained their foster parent, or should at least have noticed some remaining vestiges of it, or

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some other circumstance to indicate its existence. But the only evidence we have that an insect of another kind occurs in the diseased grain for these Chalcidians to prey upon, is the larva which I saw in the Virginia wheat from Mr. Rives. I cannot doubt but that was a Cecidomyia larva. I therefore have carefully cast over in my thoughts the circumstances under which this larva was found, and I am led to suspect that there might have been an error attending it. According to the recollection which I have, the description I gave was drawn up from a single specimen, this being the only perfect specimen which I met with in the stalks. All the others were smaller, discolored, and so soft I judged them to be in an incipient state of decay and putridity. I now suspect these smaller, tarnished individuals, were the real joint-worms, and that the worm from which my description was taken was a larva of the Hessian fly, which happened to be present in the same stalk; and that the structure of the stalk was so much confused and obliterated that I did not and perhaps could not ascertain with certainty whether this particular worm was lying in a cell which was perfectly closed, like those in which the other worms were lying, as I took it for granted that the worms were all of one kind and that their cells would consequently be alike. I hasten to state these circumstances, lest an importance be attached to the occurrence of this Cecidomyian larva in the Virginia wheat, which it may not, after all, be entitled to.

12. YELLOW-BELLIED JANUS, *Janus flaviventris*, new species. (Hymenoptera. Tenthredinidæ.)

13. THREE-SPOTTED CEPHUS, *Phyllœcus trimaculatus*, Say. (Hymenoptera. Tenthredinidæ.)

In rye fields towards harvest time, scattering heads of the grain remaining erect and having a prematurely ripe appearance, the straw bored its whole length by a footless worm a half inch long.

In Europe one of the insects most noticed by writers as injurious to the rye crop is a saw-fly three tenths of an inch long, of a shining black color, with a bright yellow mouth, legs, and spots on its hind body. It is named *Cephus pygmæus*, and forms the type of a small group, named *Cephides*, in the family *Tenthredinidæ*. It resembles a small wasp, except that its fore and hind body are closely united together, and not separated by the strong contraction which is observed in the wasp. This fly becomes common in the rye fields towards the end of May, the female

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inserting an egg in the stalk or straw, just below the ear. From this egg hatches a tapering, white footless worm, which feeds upon the soft pithy substance that lines the cavity in the centre of the straw, perforating the partitions at the joints as it works its way downward to the root, which it reaches about harvest time, and there incloses itself in a thin transparent case, in which it remains through the winter. Burning the rye stubble after harvest is regarded as the best measure for destroying this insect. Other saw-flies of the genus *Cephus* are found in Europe, in company with this, and are supposed to have the same habits.

In our American rye fields we some years see particular heads of the grain affected in the same way as above stated. But during the two past summers I have been unable to find any such in my own vicinity, and hence have not had an opportunity to ascertain the kind of worm that in our country occasions this disease. It may be some of those species of *Chlorops* which were noticed in my second report as producing a similarly prematurely ripened appearance in wheat; or it may prove, in some instances at least, to be some saw-fly of this country nearly related to the *Cephus pygmæus.* A New York insect of this kind, the same in size with the European species, and coming abroad like it the last of May, has the hind body cylindrical instead of being compressed, and consequently pertains to the genus *Janus.* It is a pretty little fly of a shining black color, with the hind body lemon yellow except at its base, its mouth being straw-colored, and also the hind margin of its collar, the base of its wings, a small spot above their sockets, and the fore and hind margins of the metathorax. The hind body is narrower than the fore body and more narrow and long than in the typical species of this genus, forming almost two-thirds of the total length of the insect. Its basal segment is black, edged anteriorly with straw yellow, and with a slender line of this color along its middle, ending in a large triangular spot. The second segment is also black except at its hind end; and on the sides is a blackish cloud on the sutures of each of the remaining segments. The wings are hyaline and glassy, their stigma sooty brown, which color extends inward, occupying most of the anterior marginal cell. A faint smoky cloud may also be perceived near the middle of the posterior apical cell, and another along the margin of the anterior one. The hind feet are dusky.

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THREE-SPOTTED CEPHUS. DESCRIPTION OF THE FLY.

No American representative of the genus *Janus* has hitherto been described, that I am aware, and the few European species pertaining to it are rarely met with by collectors. As the color of its hind body distinguishes our insect from the other known species of this genus, it may most appropriately be named the Yellow-bellied Janus, *J. flaviventris*.

A kindred but larger insect, of which a pair found in Pennsylvania, were described by Mr. Say under the name *Cephus trimaculatus*, occurs in New York also, making its appearance the fore part of June. This insect has the aspect of a very slender *Tremex* with the abdomen compressed as in *Ophion*. Its antennæ are 27-jointed; hence it pertains to the genus *Phyllœcus* of Mr. Newman. These organs are thickest in their middle and taper insensibly towards each end, the sub-basal joints being less than half the diameter of the middle ones, and cylindric. The third joint is four times as long as thick and is slightly curved, and the fourth joint is a third shorter.

This insect is black with a small white spot on each side of the middle of the hind body and a larger egg-shaped one on its base, from which spots it has received its name. The orbits or edges of its eye sockets have a white dot above and a white streak below the antennæ sockets, and the mandibles are dull white, except at their tips. Its wings are smoky-violaceous and transparent. In the second cubital cell is a black dot, placed near the anterior end of its inner margin; and the vein, from this dot to the anterior end of this cell, is margined on each side with a short white line. The anterior inner discoidal cell has a smoky spot on the middle of its hind side. Most of the middle and posterior veinlets have a white band on their inner or on both their ends. The male varies in length from 0.48 to 0.55, and the female is a third larger.

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SUPPLEMENTARY NOTICE OF THE WHEAT MIDGE.

THE FLIES OBSERVED, HATCHING IN OLD WHEAT FIELDS.

Although it has heretofore been sufficiently certain that most of the flies of the wheat midge are hatched each year in the fields in which wheat was grown the year before, we have no record that any examination of these old wheat fields has ever been made, to discover whether these flies were really present in them. And in the history of this insect which I gave in my last report, in remarking upon the male flies, which have never been found except in a very few instances, I advanced the opinion that this sex was probably as numerous as the females; that the sexes pair immediately after they come forth, and the males remain where they are born and do not accompany the females when the latter fly away in search of the new wheat fields; and that I was confident collectors of insects would readily supply themselves with specimens of the male flies by searching for them in the old instead of the new wheat fields. After having thus expressed this opinion, I of course became anxious to ascertain by actual observation whether what I had stated was correct. I accordingly have now made a special investigation of this subject. This investigation was so accurately conducted, and is of such an interesting nature, that it merits to be fully reported as an important addition to the history which I have given of the wheat midge. I therefore present it in the words in which it is written in my diary.

June 12, 1862. This is the day on which the flies of the wheat midge usually begin to appear. But the season, this year, is remarkably backward, cold and dry. Not a single hot sultry day have we yet had. And different plants, I have noticed, are a week or ten days later than their usual time, in flowering; and every kind of insect is equally tardy in making its first appearance. I therefore do not expect the midge flies yet, for some days. But, to see how many of these flies will come out from a small space of ground, and how long new flies will continue to come forth, I to-day get ready for them. I go to Deacon L.'s field, in which the midge larvæ were so plenty in the wheat heads last year, although he had a tolerably satisfactory crop. The field is now overgrown

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with clover and grass. I select a spot a few paces inside of the south-east corner of the field. With shears I cut off the herbage smooth to the surface of the ground. I fasten down to the ground the mouth of a gauze net twelve inches in diameter, confining it by little slanting pegs driven into the ground. I heap a little ridge of dry sand around it, whereby no fly can crawl in or out under the edge of the net. I barricade it around with old fragments of rails, that no cattle may walk over and trample upon it. I go and inform the proprietor of what I have done, and why I have done it. He promises not to disturb the net, and hopes no mischievous boy will meddle with it. I think some flies will hatch under this net; still, it may be that no larvæ descended last summer in the exact spot which it covers.

June 14. Going to the net, I see through the thin gauze that no flies have yet come out under it.

June 16. The idea has been extensively entertained that a frost occurring just as the midge is about to appear, will kill it. Now I shall know if there is any truth in this conjecture. There was a pretty hard frost last night, cutting off beans and all other young tender vegetation. And to-day is so cold, after freezing out of my study this morning, I kindle a fire to make it comfortable sitting there through the day. As nothing will hatch under the net in such weather, I do not visit it.

June 18. Still cool. Nothing yet appears inside of the net.

June 20. Last night was rather warm; so I was pretty confident the midge would begin to hatch. And going to the net, after tea, I see two yellow flies resting on the gauze inside, which are unmistakably the midge. To-night is cloudy, with slight rain, and I see a single fire-fly sparkling in the dark air, the first I have seen this year. This is the best mark we have, to inform us when the midge flies are first beginning to appear.

June 21. Cool and rainy. At sunset I find three more yellow flies in the net. I raise the edge of the net sufficiently to get one of them into a vial, and I destroy the others. The captured one I examine carefully, and am thus certain it is the midge which is appearing in the net. I sweep the wet clover with another net, and find it collects numbers of these flies, and the pocket magnifier shows a large portion of them to be males.

June 23. Mild, pleasant weather, and to-day warm, favorable to the hatching of insects. On going to the net, after tea, I find

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eight flies in it, which I destroy. Then, upon walking around in the field I find the midge flies are quite numerous everywhere in it, flying about, low down in the vacancies between the herbage, and others alighted and resting upon it. And when the open mouth of a vial is approached towards one of them, to inclose it therein, when it gets within an inch or two of the fly, the latter suddenly opens its wings and "skedaddles"—to use a slang term which has recently become current in our country. With three or four sweeps of the net I capture a multitude of them. I inclose ten of them in vials, and on examining these the following morning, I find five of them are males, and these are all dead, whilst the females are all alive; showing that the latter possess much more vitality and are longer-lived than the former. Both sexes are alike in their colors, their bodies being lemon yellow with the thorax orange yellow above, and usually slightly smoky on its fore part. The males are 0.06 long. A wing of a female, laid upon a scale, measures 0.09 by 0.045; a wing of a male is scant 0.07 by plump 0.03.

June 24. A cool rainy night and day, thermometer at 58°. Find two midges in the net, a male and female, which I destroy.

June 26. Yesterday rainy, the thermometer at 58°. To-day pleasant, but cool. Find three midges in the net, all males, and also a black midge of the same size with the yellow ones.

June 28. Warm and pleasant, thermometer at 75°. Find but one midge in the net. I suppose the hatch has now probably closed.

July 1. The weather continues warm and pleasant. On going to the net I find nine midges in it, four of them males; also two small flies, probably of the Chlorops genus. And among the clover in all parts of the field the midge flies continue to be plenty.

July 3. Warm and pleasant. I find four more midges in the net.

July 5. Yesterday pleasant, and to-day a hot sun will roast out of the ground any midges which may yet be remaining therein. On going to the net at sunset, I find there is nothing in it; and being satisfied these insects have finished hatching, I take up the net. I have, therefore, as the result of these observations, that thirty-two of these midge-flies came out of the ground within a circle a foot in diameter, the hatch commencing on the nineteenth of June and ending on the third of July, thus continuing for a fortnight.

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EXPLANATION OF THE PLATES WHICH ACCOMPANY THE SIXTH AND SEVENTH REPORTS ON INSECTS.

Plate 1.

Fig. 1. Joint-worm fly, magnified, the cross lines on its left indicating its natural size, as in other instances.

2. Angoumois moth.

3. The same, newly hatched and extricating itself from a kernel of wheat.

4. Mistaken parasite.

a. Its antenna, more highly magnified.

b. Antenna of the midge larva parasite, (from Curtis.)

5. Grain aphis, the winged female.

6. The same, the wingless female.

Plate 2.

Fig. 1. Wheat midge, female.

a. Its natural size.

2. Spotted-winged midge, (*Cecidomyia caliptera.*)

3. Dusky-backed midge, *C. tergata.*

4. Wheat midge, male.

5. Wing of the spotted-winged midge.

6. Antenna of the male wheat midge, greatly magnified.

7. The same of the female.

8. Eggs of the wheat midge, greatly magnified.

9. A head of wheat, the chaffs at ** opened by the yellow bird to pick the worms from the kernels of the grain, the kernels remaining at ††.

10. A flower of wheat, opened to show the worms lying upon the kernel.

a. The *glume* or outermost scale of the chaff.

b. The *outer palea* or the bearded chaff.

c. The *inner palea* or inner chaff.

d. The *germ* or young kernel.

11. Larva of the wheat midge, as commonly seen, in repose.

a. Its natural size.

12. The same, when crawling on a wet surface, with its horns fully extended.

a. Its natural size.

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EXPLANATION OF PLATE THREE.

Fig. 13. Anterior end of the same, when attempting to crawl upon a dry surface, its head being drawn in and only the ends of its horns visible.

14. Hind end of the same, with sharp teeth protruded to aid it in moving.

15. Ovipositor as figured by Mr. Curtis.

16. Ovipositor correctly represented, composed of telescopic-like tubes.

a. Two finger-like appendages, to guide the egg to its place.

b. A slender tube, bearded to hold the implement securely.

c. A larger tube into which the preceding one shuts.

d. The last joints of the body, into which the ovipositor is withdrawn.

Fig. 17. Wheat midge with wings closed, as when standing or walking.

18. Wing of the spotted-winged wheat midge, *Cecidomyia graminis.*

19. Larva of the Hessian fly.

d. Its natural size.

Plate 3.

Fig. 1. Hessian fly parasite, *Semiotellus destructor.*

a. Its natural size.

2. Hessian fly, male.

3. The same, female.

b. Its natural size.

c. Female antenna.

d. Male antenna.

e. Tip of the male abdomen, and its hooks.

f. Profile view of the head.

g. Larva.

h. Flax-seed or larva case, its upper side.

i. The same, under side.

j. The same, viewed laterally.

k. Dormant larva, taken out of the flax-seed.

l. Pupa, taken out of the flax-seed.

m. Wheat stalk, its sheath broken away, showing the young worms on their way downwards to the joint.

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EXPLANATION OF PLATE THREE.

n. and *o.* Wheat stalks, the sheath broken away, showing the flax seeds in their ordinary situation.

p. Antenna of the male parasite.

A. Appearance of a healthy (*) and of a diseased (†) shoot of wheat in autumn, the worms lying at §.

B. Appearance of a healthy (**) and two diseased stalks of wheat; (††) the stalk broken from being weakened by worms; (§§) the lower end of the sheath swollen from worms within, and perforated by parasites coming from two of those worms.

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LAWS SPECIALLY RELATING TO AGRICULTURE, PASSED AT THE SESSION OF THE LEGISLATURE, 1862.

AN ACT TO REGULATE THE USE OF PUBLIC HIGHWAYS.

Passed April 2, 1862—three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. It shall not be lawful for any owner or owners of any wild or rare animal, native or imported, which shall be used for exhibition in any menagerie or show, or owned or possessed for the purpose of so exhibiting the same, to convey or cause to be conveyed, or led or driven, over, through or upon any public highway, road or street, such wild or rare animals, unless such owner or owners shall send before the same, a person of mature age, at least one half of a mile in advance, to notify and warn persons traveling or using said highway, road or street, with horses or other domestic animals liable to be frightened by such wild or rare animal, of the arrival of such animal. Any such owner using any public highway, road or street, in violation of the provisions of this act, shall be deemed guilty of a misdemeanor, and may be punished, on conviction, by fine not exceeding one hundred dollars, or by imprisonment in a county jail not exceeding ninety days, or by both such fine and imprisonment, in the discretion of the court before which such conviction shall be had.

§ 2. Any servant or agent of the owner or owners of such wild or rare animals, and having the same in charge, who shall wilfully neglect to give the notice and warning required by the foregoing section, shall be deemed guilty of a misdemeanor, and liable to punishment therefor as prescribed by said section.

§ 3. This act shall take effect immediately.

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AN ACT TO REGULATE THE SIZE OF APPLE, PEAR AND POTATO BARRELS.

Passed April 12, 1862.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. A barrel of apples, pears or potatoes shall represent a quantity equal to one hundred quarts of grain or dry measure, and all persons buying or selling those articles in this State, by the barrel, shall be understood as referring to the quantity specified in this act.

§ 2. This act shall take effect by the first day of June, eighteen hundred and sixty-two.

AN ACT MAKING FURTHER PROVISIONS RELATIVE TO ENCROACHMENTS UPON HIGHWAYS.

Passed April 15, 1862—three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Upon the hearing before a jury, as provided in section one hundred and six of article fifth, title first, chapter sixteenth and part first of the Revised Statutes, the justice who has issued the precept to such party shall preside at the trial, in the same manner as upon the trial of an issue joined in a civil action commenced before him; six of the jurors summoned shall be drawn and impanneled, in the same manner as upon a trial by jury in civil action before him, and he shall have the power and it shall be his duty to decide as to the competency of jurors, the competency and admissibility of evidence, and all other questions which may arise before him, in the same manner and with the like effect as upon a jury trial in civil actions before him; and such justice shall adjust and determine the costs of such inquiry, and in case the jury shall find an encroachment, he shall render and docket a judgment to that effect, and for such costs against the person or persons who shall have denied such encroachment; in case the jury find no encroachment, he shall render and docket a judgment to that effect against the commissioner or commissioners prosecuting the proceedings, and also for such costs, together with the damages, if any, which may have been fixed by the jury, and payment thereof shall be enforced by such justice, as in other cases of judgments rendered by him.

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§ 2. The person or party against whom such judgment shall be rendered, may, within sixty days after filing the certificate of the jury, appeal from the finding and judgment to the county court of the same county; such appeal shall be made by the service, within twenty days after the docketing of said judgment, of notice of appeal upon the justice and upon successful party or parties, or one of them, stating the grounds of such appeal. It shall be the duty of such justice, in his return to such appeal, to embrace copies of all the papers made and served in the proceeding prior to issuing the precept for such jury, and all the evidence and proceedings before him, together with the finding of the jury and judgment entered thereon. All the provisions of title eleven, chapters third and fifth of Code of Procedure are hereby extended to such appeals, so far as the same are applicable thereto.

§ 3. In case the decision of the jury finding an encroachment shall be affirmed by the appellate court, such court, in addition to the costs now allowed by law, may in its discretion order judgment against the appellant for the penalties provided by section one hundred and four of article one, title one, chapter sixteen, part first of the Revised Statutes aforesaid, for such period as shall intervene between the time fixed for the removal of fences, of provided by section one hundred and seven of the said article, title and chapter, and the decision of such appeal; and in case of the continued neglect or refusal of the occupant, after judgment, to make such removal, the court rendering judgment may, by order from time to time, enforce the additional penalties incurred, or may provide for the removal of such fences at the expenses of the occupant, payment of such expense to be enforced by order. Such applications to be made according to the usual practice of the court.

§ 4. This act shall apply to all proceedings now pending in relation to encroachment upon highways, where a hearing has not already taken place, and all acts or parts of acts inconsistent with this act are hereby repealed, so far as proceedings had or continued under this act are concerned.

§ 5. This act shall take effect immediately,

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AN ACT TO PROVIDE FOR TAXING DOGS AND FOR THE COLLECTION OF SUCH TAX, AND TO CREATE A FUND TO PAY FOR INJURIES UPON SHEEP OCCASIONED BY DOGS.

Passed April 15, 1862—three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Section first, title seventeen, chapter twenty, part first of the Revised Statutes is hereby amended so as to read as follows:

In all the counties of the state except the city and county of New York, there shall be annually levied and collected the following tax upon dogs: Upon every bitch owned or harbored by any one or more persons, or by any family, three dollars; upon every additional bitch owned or harbored by the same person or persons or family, five dollars; upon every dog other than a bitch owned or harbored by one or more persons or by any family, fifty cents, and upon every additional dog other than a bitch, owned or harbored by the same person or persons or families two dollars.

§ 2. Section four of said title, chapter and part, is hereby amended so as to read as follows:

The assessors of every town or city or ward of a city, except the city of New York, shall annex to the assessment roll of real and personal estate therein, made by them annually, the name of each and every person or persons liable to the tax imposed hereby, together with the number of bitches and dogs for which such person or persons is or are assessed, and return the same to the supervisor of their respective towns, cities, or wards of cities, to be laid by said supervisor before the board of supervisors, to be by them collected in the same manner as other state and county and town taxes are collected. And if any person duly assessed shall refuse or neglect to pay the tax so assessed within five days of the demand thereof it shall be lawful for any person, and it shall be the duty of the collector to kill the dog so taxed.

§ 3. Section five of said title, chapter and part is hereby amended by striking out the words "sixty days from the time of such delivery," and inserting the words, "the time now required by law for the collection of taxes laid by said supervisors."

§ 4. Section seven of said title, chapter and part, is hereby amended so as to read as follows:

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Each collector shall be allowed to retain a commission of ten dollars on every hundred dollars collected, and at that rate upon all sums collected by him pursuant to the direction of the supervisors; and said collectors shall also on filing his affidavit of the fact with the county treasurer, be entitled to retain as a further compensation, from the moneys collected by him, the sum of one dollar for every dog or bitch killed by him under the provisions of the second section of this act.

§ 5. Section ten of the said chapter, title and part, is hereby amended by inserting after the words "fence viewers of the town" therein, the further words, "or assessors of the city or of the ward of the city."

§ 6. Section eleven of the said title, chapter and part, is hereby amended by striking out the words "due notice" and inserting in the place thereof the words "notice in writing of the time and place of such view, shall have been served, at least twenty-four hours before, on the said owner or possessor, either personally or by leaving at his dwelling house with a person who usually dwells therein and who shall have arrived at the age of sixteen years," and by striking out the words "to the fence viewers," in the last line thereof.

§ 7. Section twelve of the said title, chapter and part, is hereby amended by striking out the words "of the fence viewers," and inserting the words "mentioned in the tenth section," and section thirteen thereof is hereby amended by striking out the words constituted by the eighth section of this title," and inserting the words "to be raised by said tax."

§ 8. The several collectors to whom any warrant for the collection of the tax herein mentioned shall be delivered, shall have all the powers, for the collection thereof, which such collectors now have, and they and their sureties shall be subject to all the liabilities therefor which such collectors and their sureties are now subject to.

§ 9. In any action brought for the killing of any dog, it shall be incumbent on the plaintiff in said action to prove that the tax imposed upon such dog by the provisions of this act has been paid.

§ 10. Section two of said title, chapter and part, and all acts or parts of acts, whether general or local, inconsistent with the act hereby amended or repugnant thereto, are hereby repealed.

§ 11. This act shall take effect immediately, except section nine, which shall take effect on the first of November next.

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AN ACT IN RELATION TO AGRICULTURAL AND HORTICULTURAL ASSOCIATIONS.

Passed April 17, 1862; three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. In addition to the powers now vested by statute in the board of managers of any agricultural or horticultural associations, the officers of such association shall have power to regulate and prevent all kinds of theatrical, circus or mountebank exhibitions and shows, as well as all huckstering or traffic in fruits, goods, wares and merchandise of whatever description, for gain, on the fair days, and within a distance of two hundred yards of the fair grounds of said association, if in the opinion of said officers, the same shall obstruct or in any way interfere with the free and uninterrupted use of the highway around and approaching such fair grounds; and the police employed by any such association shall possess the same power for a space of two hundred yards from said fair grounds, as is now vested in them by law within said grounds and be under the same control of the officers of the association within that space; and the same fines and penalties shall be incurred for any violation of the rules and regulations of said officers of any such association within two hundred yards of the fair grounds, as is now by law incurred for any violation of the rules and regulations within the grounds of any such association.

AN ACT TO PROVIDE FOR THE COLLECTION OF AGRICULTURAL STATISTICS IN THE SEVERAL COUNTIES OF THIS STATE.

Passed April 17, 1862—three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. It shall be the duty of all county agricultural or horticultural societies, or, in the absence of such county societies, town societies, that receive an annual appropriation of money and books, or either, from the State treasury, to procure the collection of the statistics of agricultural and horticultural products and improvements each year in their respective counties, by procuring proper answers to such questions as shall be contained in blanks to be provided for that purpose.

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§ 2. It shall be the duty of the board of managers, or other proper officers of such county agricultural or horticultural societies, or in the absence of such county societies, the presidents of the several town societies which receive money from the State, to select and appoint some suitable person in each school district, and each joint district in said county, whose duty it shall be to procure the proper answers from all persons residing in the said school district or joint district to the questions contained in the blanks to be furnished for that purpose, and the said board of managers or president shall furnish the person so appointed with the proper blanks on or before the first day of January of each and every year, with such instructions as may be necessary to his correct understanding of the duties to be performed.

§ 3. The persons thus appointed in the several school districts and joint districts shall proceed at once to procure the proper answers to the several questions contained in said blanks, by calling on the persons of whom the information is to be obtained, or in such other manner as in the judgment of said officers may best secure the correct answers; which answers he shall enter upon said blanks, under their appropriate heads, and opposite the name of the respective persons from whom they are obtained. When the answers shall have been obtained from all the residents of said districts, and properly entered upon said blanks, the said blanks shall be returned to the president of said agricultural or horticultural society, who shall cause the same to be added up, and the aggregate result for each school district or joint district entered in a column on similar blanks, opposite the number of the respective district, in such manner as to show the result in each town by school districts, which blanks containing such aggregate results, shall be forwarded to the Secretary of the New York State Agricultural Society, on or before the 1st of February in each year.

§ 4. The several officers appointed in school districts, as provided in section two of this act, and who shall perform the duties of said office, shall be entitled to receive and shall be furnished by the president of the agricultural or horticultural society of his respective county one copy of the Transactions of the New York State Agricultural Society and one copy of the Transactions of the American Institute, published for the year that the statistics thus collected represent. The county agricultural or horticultural society, or, in the absence of soch county societies, the town societies, whose officers shall faithfully perform the

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duties specified in the several sections of this act, shall be entitled to receive from the comptroller of this State such amounts of money annually as they have heretofore been authorized to receive under the provisions contained in the act entitled "An act for the encouragement of agriculture," passed May fifth, one thousand eight hundred and fifty-one, an act to amend an act entitled "An act to promote agriculture," passed May fifth, one thousand eight hundred and forty-one, and the acts amendatory thereof, passed April sixteenth, one thousand eight hundred and sixty one, without procuring a like sum to be raised by subscription or otherwise, as provided by said act.

§ 5. It shall be the duty of the comptroller to provide blanks by the first day of December in each year, of such form and containing such questions as shall be approved by the executive committee of the New York State Agricultural Society, and furnish the same to the presidents of said county or town agricultural or horticultural societies, with such instructions as shall enable said officers to discharge the duties required of them, as contemplated by this act.

§ 6. If there should be any counties in this State in which there is no such agricultural or horticultural society, or town societies, receiving appropriations from the State treasury, then it shall be the duty of the executive committee of the New York State Agricultural Society to appoint a suitable person in each of said counties, whose duty it shall be to appoint suitable persons in the respective school districts of his county, as provided in section two of this act; and the persons so appointed shall proceed in all respects as if they had been appointed by the board of managers or other officers of a county agricultural or horticultural society, as provided by section two of this act.

§ 7. Such persons as shall be appointed by the executive committee of the New York State Agricultural Society, shall be entitled to receive a suitable compensation, to be paid out of any moneys that would properly belong to a county agricultural or horticultural society, if such society existed in said county, and the Treasurer of the State shall pay such sum on the warrant of the Comptroller, to be given on the certificate of the Secretary of the State Agricultural Society, that such service has been duly and faithfully performed, but such compensation shall not in any case exceed in amount the sum that such county agricultural or horticultural society would be entitled to receive.

§ 8. This act shall take effect immediately.

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AN ACT TO PROVIDE FOR THE FORMATION OF SOCIETIES FOR THE PREVENTION OF HORSE STEALING.

Passed April 22, 1862—three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. Any ten or more persons of full age, citizens of this State and of the United States, who shall desire to associate themselves into a society for the prevention of horse stealing, by the employment of patrolmen, riders and messengers and the use of all other lawful means to prevent the same, may make, sign and acknowledge before any officer authorized to take the acknowledgment of deeds in this State and file the same in the office of the Secretary of State, and a duplicate thereof in the office of the clerk of the county in which the business of said society is to be conducted, a certificate in writing in which shall be stated the name or title by which such society shall be known in law, the particular business and objects of such society, the number of trustees, directors or managers to manage the same, and the names of the trustees, directors or managers of such society for the first year of its existence; but such certificate shall not be filed unless by the written consent and approbation of one of the justices of the supreme court of the district in which the place of business of such company or association shall be located to be endorsed on such certificate.

§ 2. Upon filing a certificate as aforesaid the persons who shall have signed and acknowledged such certificate and their associates and successors, shall thereupon by virtue of this act be a body politic and corporate by the name stated in such certificate, and by that name they and their successors shall and may have succession and shall be persons in law capable of suing and being sued, and they and their successors may have and use a common seal. And they and their successors by their corporate name shall in law be capable of taking, receiving, purchasing and holding for the purpose of their incorporation and for no other purpose, personal estate to an amount not to exceed one thousand dollars; to make by-laws for the management of its affairs not inconsistent with the Constitution and laws of this State or of the United States; to elect and appoint the officers and agents of such society for the management of its business, and to allow them a suitable compensation.

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§ 3. Every corporation formed under this act shall possess the powers and be subject to the provisions and restrictions contained in the third title of the eighteenth chapter of the first part of the Revised Statutes.

§ 4. The Legislature may at any time amend, annul or repeal any incorporation formed or created under this act.

§ 5. This act shall take effect immediately.

AN ACT TO PREVENT THE ADULTERATION OF MILK, AND PREVENT THE TRAFFIC IN IMPURE AND UNWHOLESOME MILK.

Passed April 23, 1862 —three-fifths being present.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. Any person or persons who shall sell or exchange, or expose for sale or exchange any impure, adulterated or unwholesome milk, shall be deemed guilty of a misdemeanor, and on conviction shall be punished by a fine of not less than fifty dollars, and, if the fine is not paid, shall be imprisoned for not less than thirty days in the penitentiary or county jail, or until said fine and cost of suit shall be paid.

§ 2. Any person who shall adulterate milk with the view of offering the same for sale or exchange, or shall keep cows for the production of milk for market, or for sale or exchange, in a crowded and unhealthy condition, or feed the same on food that produces impure, diseased or unwholesome milk, shall be deemed guilty of a misdemeanor, and on conviction shall be punished by a fine of not less than fifty dollars, and if the fine is not paid shall be imprisoned for not less than thirty days in the penitentiary or county jail, or until said fine and cost of suit shall be paid.

§ 3. Any person or persons who shall engage in or carry on the sale, exchange or any traffic in milk, shall have the cans in which the milk is exposed for sale or exchange, and the carriage or vehicle from which the same is vended, conspicuously marked with his, her or their names, also, indicating by said mark the locality from whence said milk is obtained or produced, and for every neglect of such marking, the person or persons so neglecting shall be subject to the penalties expressed in the foregoing section of this act. But for every violation of this act, by so

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marking said cans, carriage or vehicle as to convey the idea that said milk is procured from a different locality than it really is, the person or persons so offending shall be subject to a fine of one hundred dollars or imprisonment in the penitentiary or county jail, or both, in the discretion of the court.

§ 4. This act shall take effect immediately.

AN ACT TO PREVENT ANIMALS FROM RUNNING AT LARGE IN THE PUBLIC HIGHWAYS.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

SECTION 1. It shall not be lawful for any cattle, horses, sheep or swine to run at large in any public highway in this State.

§ 2. It shall be lawful for any person to seize and take into his custody and possession any animal which may be in any public highway, and opposite the land owned or occupied by him, contrary to the provisions of the foregoing section. And it shall be lawful for any person to take into his custody and possession any animal which may be trespassing upon premises owned or occupied by him.

§ 3. Whenever any such person shall seize and take into his custody and possession any animal under the authority of the next preceding section, it shall be the duty of such person to give immediate notice thereof to a justice of the peace or a commissioner of highways of the town in which such seizure and possession shall have been taken, and such justice or commissioner shall thereupon give notice by affixing the same in six public and conspicuous places in said town, one of which shall be the district school house nearest the residence of such justice or commissioner, that such animal or animals will be sold at public auction, at some convenient place in said town, not less than fifteen nor more than thirty days from the time of the affixing of such notice, to be specified in such notice; the same justice or commissioner shall proceed to sell the said animals for cash, and out of the proceeds thereof shall, in the first place, retain the following fees and charges for his services in giving said notice and making said sale, viz: for every horse sold, one dollar; for every cow or calf, or other cattle, one half dollar; and for every sheep or swine, twenty-five cents; and shall then pay to the person who

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shall have seized the said animal or animals the sum following, that is to say: for every horse so seized or sold, one dollar; for every cow or calf, or other cattle, one half dollar; and for every sheep or swine, twenty-five cents; together with a reasonable compensation, to be estimated by such justice or commissioner, for the care and keeping of said animal or animals from the time of seizure thereof to the time of sale. If there shall be any surplus money arising from said sale, the said justice or commissioner shall retain the same in his hands, and pay the same to the owner or owners of said animals, after a reasonable demand therefor and satisfactory proof of such ownership, provided such owner or owners shall appear and claim such surplus moneys within one year after sale. And if the owner or owners of such animal or animals shall not appear and demand such surplus moneys within one year after such sale has been made, he shall be forever precluded from recovering any part of such moneys; and the same shall be paid to the supervisor of the town for the use of the town, and his receipt therefor shall be a legal discharge to said justice or commissioner.

§ 4. Any owner of any animal which shall have been seized under and pursuant to the foregoing provisions, may, at any time before the sale thereof, demand and shall be entitled to the possession of such animal, upon the payment by him of the several sums hereinbefore required to be paid to the said justice or commissioner, and to the person by whom the seizure aforesaid shall have been made, together with a reasonable compensation to the person making such seizure, for the care and keeping of such animal, to be estimated and fixed by such justice or commissioner, and upon making to such justice or commissioner satisfactory proof of ownership. And if such owner shall make such demand and proof at least three days before the time appointed for such sale, he shall be entitled to the custody and possession of such animal, upon paying one-half of the several sums above mentioned, together with the whole amount of compensation awarded by the said justice or commissioner.

§ 5. In case the animal so seized under the foregoing provisions of this act, shall have been so running at large or trespassing, by the wilful act of any other person than the owner to effect that object, such owner shall be entitled to the possession of such animal by making the demand therefor and the proof required in the next preceding section, and paying to the person making such a seizure the amount of compensation fixed by such justice or commissioner, for the care and keeping of such animal, and without paying any other charges. And the person committing such wilful act shall be liable to a penalty of twenty dollars, to be recovered in an action at law at the suit of the owner of such animal or the person making such seizure.

§ 6. All acts or parts of acts inconsistent herewith are hereby repealed.

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